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# Strategic Utilization of IT for Corporate Crisis Management:

# the Empirical Study on Textile and Automotive Suppliers Sectors

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**Abstract**

This paper reports the findings of a survey on the use of Information Technology (IT) in crisis management in textile and automotive suppliers industries in Turkey. The survey was sent to 114 Turkish companies with 50 employees or more, resulting in a response rate of 46 %. Statistical analysis of the result demonstrate that although the development of crisis management plans leads to a higher awareness of the company risks, it is especially the creation of a crisis management team that leads to a higher degree of actions taken, for instance training or simulations. Moreover, this study demonstrates that the level of IT use in crisis management is predominantly related to the presence of a member in the crisis management team with an IT background.

**Keywords:** Crisis management, IT, Textile, Automotive

## 1. Introduction

Global competition has brought about changes that are characterized by product proliferation with shorter and uncertain life cycles, innovative process technologies, and customers who simultaneously demand quick response, lower costs, and greater customization. Companies must cope effectively with continuous and unexpected changes in order to become competitive. The ability to respond quickly and effectively (time-based competition) and to satisfy customer needs has become a distinctive characteristic of competitiveness for many manufacturing companies.

A crisis is a situation faced by an individual, a group or an organization, which they are unable to cope with, by the use of normal routine procedures and, in which stress is created by sudden change (Booth, 1993). Various authors like Fink (1986) also describe crisis as a period of sudden change during which a totally new system is formed; stressing on the fact that the meaning of crisis does not only cover risk, uncertainty, threat, conflict, accident, and instability but also covers opportunity.

Management of a major crisis requires prevention, planning, testing, evaluation and maintenance to mitigate and minimize the consequences. The process used by a company can determine the outcome for those affected, including employees, community and the company. A crisis is any natural, accidental or intentional event that severely impacts people, property, and/or the environment. Effects might include fatalities, disabling injuries, significant destruction or

contamination, jeopardizing the organization's reputation or products, or threatening a company's continued existence. The consequences are independent of company size, quality of management, industry or location.

Technology and ever changing threats challenge the preparation needed to manage situations that may affect an organization's future. Minimizing risk by application of process safety management tools and security systems is an important component of an overall plan.

## 2. Strategic utilization of information technologies

Nowadays, the business environment is characterized by great uncertainty and variability. In this environment, information technology (IT) has proved to be an important strategic ingredient for the creation of competitive advantage. In the new era of production, strategic priorities rather than a cost contained focus have proved to be important for competition, namely: quality, dependability, flexibility, customer service, after sale service, supply chain management, etc. IT proved to be vital for successful competition as it can facilitate the attainment of these strategic targets.

Information Technology (IT) has emerged as an essential element in developing countries such as Turkey in supporting the need for regular, real-time, and dependable information in business and industry (Eze, & Mohammad, 2000). The successful use of IT depends on the technology itself and the level of expertise of the individual using the technology. The impact of IT on user productivity and user satisfaction is said to be an indicator of the success of computer utilization (Davis, 1989). To study the nature and extent of IT utilization, research in computer utilization and acceptance and how the technology contributes to a firm's competitiveness in a developing country environment was undertaken.

As information technology and information systems today are embedded in all organizational levels and activities, a growing research and development effort has emerged in recent years that focuses on the design, development, use and evaluation of information systems that can help organizations prepare for, and respond to, a crisis (Turoff et al., 2004). For example, information systems have been used to understand the possible relationships among threats an organization is facing (Van de Walle & Rutkowski, 2006). While corporate crisis planning and preparedness in general is the setting of this research paper, a particular point of interest addressed here are the particular motivations, if any, of managers to use IT in the different stages of crisis management in their company.

Implicit in crises of varying scopes and proportions are communication and information needs that can be addressed by today's information and communication technologies. In a comprehensive review, Turoff et al. (2004) systematically develop a set of general and supporting design principles and specifications for a Dynamic Emergency Response Management Information System (DERMIS) by identifying design premises resulting in part from the use of "Emergency Management Information System and Reference Index" (EMISARI), a pioneering emergency management information system built by Turoff and used in the 1970s at the US Presidential Office for Emergency Preparedness, and in part based on a comprehensive literature review.

## 3. Corporate crisis management

Crisis management is generally considered a strategic management activity aiming to prevent or minimize the impact of a crisis for the organization. Crisis management is a dynamic and systematic process encompassing the phases of prevention and mitigation, preparedness, response and recovery (Fink, 1986; Preble, 1997; Pauchant et al., 1992). The initial phase of prevention and mitigation typically involves a threat or vulnerability analysis, leading to an identified list of risks that may provoke a crisis upon their materialization. Identified risks may be eliminated (for instance by installing a software patch for some identified system vulnerability), diverted (for instance by buying Service Level Agreements), or accepted and prepared for (e.g. by installing duplicate systems at a remote site). These activities are often referred to as risk management, which in general leads to a risk management plan. A crisis management plan on the other hand addresses the response phase of the crisis, and outlines the measures, strategies and procedures to be taken, and the responsibilities of those involved. A crisis management team is usually activated to prepare for coordinating and monitoring the ongoing response activities. The team takes the necessary steps to support and facilitate the decision making processes during crisis response, mainly by coordinating the response activities and collecting and distributing information to the responders, senior management, employees and other stakeholders, including the press. The construction of a crisis plan typically starts with an attempt to identify and classify possible crises which may occur, given the properties of the organization and its business processes. Several frameworks have been defined to assist in this classification process (Marcus & Goodman, 1991; Pauchant et al., 1992). Hence, a set of five different incident or crisis types are identified for which a company should prepare (Table 1).

Crisis management entails minimizing the impact of an unexpected event in the life of an organization. Many large organizations have highly developed crisis management plans and teams that are ready and rehearsed for crises. Small businesses, generally defined as those having fewer than 500 employees, may believe that crisis planning is less important. Many small organizations have the mentality that "crises don't happen in our industry/field" or "we have a well-managed business and could manage our way through a crisis without a plan" (Caponigro, 2000). They assume

that crisis events only happen to other organizations or that they are somehow protected from a crisis (Mitroff, 1989). Other small businesses may believe that they need not plan for crises because they carry insurance. Unfortunately, insurance does not cover intangible items such as company reputation, customer goodwill, and professional rapport.

Although terms such as crisis management, crisis plans and teams are well known and different methods are at hand to help companies write a crisis plan, figures on the actual preparedness of companies is rather disappointing. In their 2004 survey, AMA found that 61% of the respondents had a crisis management plan –a slight decrease compared to a year earlier, but still 15% up from 2002. Nevertheless, these surveys point out that no less than 40%of the companies do not have a crisis management plan. These figures are confirmed by the survey of Spillan and Hough (2003) showed that small businesses still place little emphasis on crisis planning. Literature provides us with several possible reasons why so many companies fail to construct a plan: the chance for any serious crisis is perceived too small for it to happen, the conception that insurance covers the damage inflicted by a crisis anyway, or management simply has no idea what the vulnerabilities of their organization are. Regretfully, many excellent case studies now exist describing the fate of organizations that did not have such plans in place (Shrivastava, 1993; Pearson and Mitroff, 1993). They demonstrate that businesses that have no concern regarding a potential crisis will do little to plan for potential occurrences of that event. This, obviously, often results in catastrophic outcomes.

### 4. Research methodology

The survey consisted of close ended, structured questions, constructed according to the guidelines of Hulshof (1997). It was primarily based upon an earlier national crisis management survey conducted in the Netherlands, Belgium and Luxemburg (Van de Walle et al., 2006), and dealt with four key areas:

(i) experiences and expectations on incidents and crises;

(ii) crisis management activities;

(iii) crisis management plans and

(iv) crisis management teams.

The survey was send to the management of 114 companies in the Turkey. Companies were selected according to the latest data available in the central database of the Chambers of Commerce in the Turkey. The size of the company was a criterion (50 employees or more) as well as the sector to which it pertained (textile and automotive suppliers industries). The survey was anonymous; no identification was required, and results were guaranteed to be treated confidential. A reminder letter was sent to all companies two weeks later. The response rate was respectively 48.2 percent in the textile sectors and 51.8 percent in automotive suppliers (Table 2).

The frequency distribution of the size of the company is expressed in full time equivalents (FTE). It indicates that the majority of responses are from rather small companies, which is no surprise since Turkey is a country with large presence of Small and Medium sized Enterprises (SMEs).

Overwhelmingly, the organizations responding to the survey lacked crisis management teams. Table 3 shows that only 22.8% of respondents acknowledged the existence of a crisis management team, while 71.1% indicated they had no such team. Seven organizations, or 6.1%, did not provide a response to the question. Results of analysis show that, a big majority, small businesses with crisis management teams had no greater concern for potential crises than the businesses without crisis management teams.

Respondents were asked to evaluate the IT implementation level on a five-point scale for three years ago and the research date. Significant increases were registered in the implementation of all individual technologies. As seen in Table 4 IT implementation by Turkish textile and automotive suppliers sectors was low for each IT three years ago. The IT least employed by companies was WAN with a mean score of 3.62 that was followed by MAN (3, 93), LAN (4, 09) and Internet (4, 57). When taking into account current levels of IT, implementation levels increased in a statically significant manner.

Companies were asked whether they recently (i.e., within the last two years) used IT to communicate about their crisis management plans and/or efforts, both within their own organization and towards external parties. They were asked whether they recently used IT to develop or adjust their crisis management plans and whether they used IT for training, simulation or education purposes in the past two years. The results are presented in Table 5.

A vast majority of the companies developed or adjusted their crisis management plans, communicated about crisis management towards their own organization and did some type of simulation, exercise or training in the past two year. Though, crisis management appears to be predominantly an intra-organizational issue. Communication towards third parties is far less common. The use of IT can be observed to be less common. Less than half of the companies that took actions in one form or another use IT to support these actions. Even internal communication regarding crisis management is often not done via IT. This leads to the conclusion that, in general, companies are either not aware of the

ability to support crisis management with IT tools or do not really perceive a high added value of IT for crisis management activities.

## 5. Conclusions

The work presented in this paper addressed the importance of IT to support the concept of crisis management. This research is based on a large survey in three countries among companies regarding crisis management, resulting in a response of 114 companies. The descriptive analysis of the data points out that the use of IT in crisis management is rather modest. Companies actively involved in crisis management in the past two years used IT in no more than half of their actions taken.

Furthermore, our analysis indicates that crisis management plans primarily impact the perceived need while the presence of a team primarily impacts the level of action taken. Hence, the analysis of risks (first step in the plan) leads to a higher awareness of potential risks and thus a higher perceived need for crisis management, while a team is especially good at introducing actions within a company.

Furthermore, the companies were asked whether or not they had a crisis plan or a crisis team. No enquiry was made into the quality of the plan or team. Hence, in future research, methods need to be developed to incorporate the quality of the latter. Moreover, the response rates were rather low. The survey can be refined by including a distinction for different levels of sophistication of IT use, which can range from the use of mobile phones, PDAs or Personal Computers to the use of dedicated information systems or DERMIS. No clear distinction was made in the current survey.

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Table 1. Crisis types

| Operational Crises | Publicity Problems |
|---|---|
| Loss of records permanently due to fire | Boycott by consumers or the public |
| Computer systems breakdown | Product sabotage |
| Loss of records permanently due to computer system breakdown | Negative media coverage |
| Computer system invaded by hacker | **Legal Crises** |
| Major industrial accident | Consumer lawsuit |
| Major product/service malfunction | Employee lawsuit |
| Death of key executive | Government investigation |
| Breakdown of a major piece of production/service equipment | Product recall |
| **Fraudulent Activities** | **Natural Disasters** |
| Theft or disappearence of records | Flood |
| Embezzlement by employee(s) | Tornado |
| Corruption by management | Snowstorm |
| Corporate espionage | Hurricane |
| Theft of company property | Earthquake |
| Employee violence in the workplace | |

Source: Crandall, W., McCartney, M., & Ziemnowicz, C. (1999). Internal auditors and their perceptions of crisis events. *Internal Auditing*, 14(1), 11–17.

Table 2. Response over different industrial sectors

| Sector | Freq. | % |
|---|---|---|
| Textile | 55 | 48.2 |
| Automotive Suppliers | 59 | 51.8 |
| **Total** | **114** | **100.0** |

Table 3. Organizations with crisis management teams

| Existence of team | Number of responses | Percentage |
|---|---|---|
| Yes | 26 | 22.8 |
| No | 81 | 71.1 |
| Did not respond | 7 | 6.1 |
| **Total** | **114** | **100.0** |

Table 4. Usage of information technologies in companies

| Technology items | 3 years ago | | Current Situation | |
|---|---|---|---|---|
| N:114; $P<0.010$ | Mean | St. Dev. | Mean | St. Dev. |
| Internet | 4,57 | 0,66 | 4,81 | 0,92 |
| Local Area Network (LAN) | 4,09 | 0,90 | 4,65 | 1,03 |
| Metropolitan Area Network (MAN) | 3,93 | 0,86 | 4,17 | 0,98 |
| Wide Area Network (WAN) | 3,62 | 1,02 | 3,91 | 0,68 |

Table 5. Use of IT in crisis management

| Type of Action | Actions in past 3 years (%) | IT-based actions in past 3 years (%) |
|---|---|---|
| External Communication | 59 | 41 |
| Internal Communication | 37 | 25 |
| Crisis Planning | 47 | 59 |
| Plan Development | 46 | 31 |
| Relationship with Media | 78 | 62 |
| Training | 63 | 49 |
| Simulations and Exercises | 44 | 30 |

# How the Principle of Risk Management

# Can Be Applied to Different Types of Projects?

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**Abstract**

Project risk management is a process which combines the analysis and management of the risks with a project and the principles of risk management include two key points which are risk analysis and risk control and arrangement. The case studies clarify the principles of project risk management can be used in different types of projects, and also when doing risk management it should be followed by right steps, choosing the right analysis methods, quantifying the risks precisely and formulating appropriate plan for risks control.

**Keywords:** Risk management, Principles of risk management, Risk analysis, Risk control, Risk arrangement

**Introduction**

Making the project achieve success requires many factors to be got right simultaneously. Project failure, however, may result from only one slight problem. It is obvious how important to adopt risk management principles for the whole process of project management.

Project risk management is a process which combines the analysis and management of the risks with a project. The purpose of risk management is to reduce future damage and loss, to minimize the total cost of risk and identify, control and limit the impact of the risks *(*Hamilton, 1996*)* it is a process designed to eliminate or limit the risks which threaten the achievement of project objectives. Properly undertaken it will increase the successful completion of a project for cost, time and performance objectives.

There are a lot of kinds of risks may be generated in projects. Dealing with risks in projects is therefore different from situations; even two identical projects still can produce different risks.

For this question: "Explain how the principles of risk management can be applied to different types of projects?" I will divide it into two parts as follows:

- What are the principles of risk management?

- Case studies for how the principles can be applied to three different types of projects.

**1. What are the principles of risk management?**

Project risk management includes two following key points:

*1.1 Risk Analysis*

Risk analysis comprises the following activities:

- Identification of possible risks

- Quantification of the probability of occurrence and consequences if the risks occur

- Calculating the risk and prioritizing in order of importance.

1.1.1 Identification of possible risks

These may comprise:

- Physical or material safety risks during the construction phase of the project, loss due to fire, corrosion explosion, war etc

- Consequential: loss of profits following fire, following theft etc

- Legal liabilities to the client and end-users of the project from physical failures arising from quality failures during the project

- Industrial disputes, strikes ,wage and other cost increases during the completion of the project

- Social risks: changes in public opinion, expectations of work force, grater awareness of moral issues

- Changes in the value of the final output of the project, because of the technological changes, changes in market prices, or changes in consumer preferences

- Changes of government policy or in legislation on environmental requirements, export or import regulations, tariff levels, exchange rates, tax rates etc

- Financial risks: inadequate inflation forecasts, incorrect marketing decisions, credit policies

- Loss of key project inputs such as raw materials, key personnel probability of occurrence equipment, or essential data, due to computer system failures, sickness, death or resignations amongst staff, fire or theft in own or supplier's organization or insolvency of suppliers.

1.1.2 Quantification of the probability of occurrence and consequences if the risks occur

The probability and consequences need to be identified because they decide the effects on the whole project arising from the risks. We need to know if the potential loss are serious or not and then to make the plan for next stage.

The methods for quantification of the probability and consequences include:

- Analysis of available records and data

- Detailed forecasts of weather conditions and financial conditions

- Available techniques of decision trees, sensitivity analysis, Monte Carlo simulation etc

- Subjective assessments

- Hazard indices, e.g. Explosion Index

- Monetary and utility estimates of the consequences.

1.1.3 Calculating the risk and prioritizing in order of importance

Once the risks probability and consequences have been identified, the order of priority can be set up by following formula:

Risk = Potential Loss × Probability of Occurrence (Leslie Edwards, 1995)

Table1 shows the risk ranks revealing the priority when the probability and consequences have been known.

*1.2 Risk Control and Arrangement*

After identifying the risks probability and consequences .It obviously that we need to devise some useful way for controlling the risks, eliminating or reducing. The controlling lever between internal and external risks can be illustrated in a risk map at figure 1 and all risks we talk about above can be deal with by following basic methods:

- Reducing risks

- Transferring risks

- Self-insurance

- Residual risks.

1.2.1 Reducing risks

Reducing the risks probability and minimizing the consequences by:

- Adding expenditure on some related equipment

- Increasing staff training and supervision

- Drawing up contingency plans once the risks occur

- Improving safety procedures and observance of Health and Safety regulations and recommendations.

1.2.2 Transferring risks

Transferring risks include insurance transfer and contractual transfer basically.

- Insurance transfer may involve various kinds of insurance, such as public liability insurance, product liability insurance, employer's liability insurance etc.

- Contractual transfer may involve transferring to contractors or sub-contractors, financial guarantees, bonds, options contracts etc.

1.2.3 Self-insurance

Self-insurance usually means some self finance methods through internal pooling of risk, internal or external fund, arranging external borrowings etc.

1.2.4 Residual risks

Risks which cannot be totally eliminated, substituted of contractually transferred to others are residual risks. (Leslie Edwards, 1995)

If the project cannot take any effective measures to influence the risk, they may choose to accept it and try to reduce its damage in other ways as much as possible.

To sum up: the principles of project risk management can be described as a whole complex process through the Figure 1 as follows:

**2. Case studies for how the principles can be applied to three different types of projects**

Some experienced users of project risk management always say it can be applied to any or all projects and experience does show that is true. All projects contain risk and risk management is an integral part of project or business management. As long as there is a project, there must be risks no matter what kind of it, public or private, big or small, construction or IT etc.

It is better to cite some typical examples to analysis the application of project risk management in different types of project.

*2.1 China Three Gorges Dam Project (big project, public project, construction project and development project)*

Three Gorges Dam is a Chinese hydroelectric river dam**,** which is also the biggest dam in the world. Think of It in terms of a project, it is a very big project, a public project, a construction project and a development project as well. We cannot easily judge "Three Gorges Dam" project is successful or not since there have been a lot of debates over the dam's costs and benefits for a long time.

The problems the objectors suspected can be considered as the risks of the project. We cannot jump to the conclusion that: Three Gorges Dam Project is a failure because some risks can be eliminated, or at least can be reduced in terms of project risk management.

2.1.1 Risk Analysis

Three Gorges Dam Project is a huge project which cost estimated 25 billion U.S. dollars.(Data Sauce: Wikipedia, Three Gorgers Dam) Therefore there are lots of risks about it ranging over a variety of aspects, including physical risks, financial risks and society risks etc.

Let's pay attention to following main risks:

- Physical risks: the earthquake and geology experts have identified that the dam is located in the influenced area where might occur earthquake at 6 magnitude at highest level. Once the earthquake take place and the dam may collapse the consequences would be even worse than if the dam had not been there

- Inputs risks: The dam wall is made of concrete and is about 2,309 meters long and 185 meters high. The wall is 115 meters wide on the bottom and 40 meters wide on top. The project used 27,200,000 cubic meters of concrete, 463,000 metric tons of steel and numerous workforces. (Data Sauce: Wikipedia, Three Gorgers Dam)If these necessary inputs cannot be in place, the time limit for the whole project would be badly affected

- Society risks: the relocation of local residents is the central part of the Three Gorges Dam Project. It is considered as important as the construction of the dam. 1,400,000 citizens have been displaced, which is about 1.5% of the total population of Hubei Province (60.3 million) and Chongqing City (31.44 million) where the reservoir is located. About 140,000 residents will be relocated out of Hubei province to eastern provinces and some central provinces, and the majority of the remaining people will be relocated within Hubei Province. (Data Sauce: Wikipedia, Three Gorgers Dam) The government needs to consider two serious problems that moving out the inhabitants and their economic reconstruction simultaneously. It will result in some very bad society effects if the two problems cannot be solved well and smoothly

- Financial risks: the dam will be entirely completed in 2009 lasting 15 years with a budget of $20 billion and the costly resettlement plan amounts up to $4 billion. (Data Sauce: Wikipedia, Three Gorgers Dam). For such a long time, the government has to consider carefully for any influencing factor on the final budget, such as inflation, changes of inputs price and some contingency. There are a lot of examples of projects were abandoned for lack of enough funds. (e.g. The financial crisis in Asia in 1997 caused a lot of projects failure).

2.1.2 Risk Control and Arrangement

Following the principles of project risk management we mentioned before, after risk analysis, we should do risk control aiming at all the risks above, eliminate them or at least reduce them.

- Physical risks control and arrangement: because the earthquake and geology experts have identified that the dam is located in the influenced area where may occur earthquake at 6 magnitude at highest level. The whole construction of dam is built at the defensive lever of magnitude of 7. Additionally, China Three Gorges Project Corporation has entrusted China Earthquake Administration to develop and set up Three Gorges Dam Project earthquake monitoring system which adopts advanced digital remote controlling technique for constructing earthquake monitoring networks. Finally, even if the dam will collapse for earthquake or other reasons, it has the ability to discharge all the water in three days, impossibly makes any grave consequence

- Input risks control and arrangement: In the past, the construction and management of a project are separated. However, the mode that China Three Gorges Project Corporation is in charge of all process of the construction, management and payment of the loan. It has avoided wasting and made a clear division. What's more, it introduces bidding and tendering, supervising, contract management system, sighed contracts with different qualified material company to make sure the fully inputs. These systems transfer the input risks to various companies through contractual

- Since 1993, the project has covered equipments, labors and the whole construction in People's Insurance Company of China for ¥15.2 billion. It also invites American Daxin insurance consultant company as the project insurance adviser to prevent contingency. It is also a very useful way for transferring risks through insurance

- Society risks control and arrangement**:** the project adopts the mode of "Developmental Immigration" which is moving out the inhabitant, in the meantime taking the infrastructure construction and industry construction. China Three Gorges Project Corporation allocates the funds to local government for the inhabitant arrangement annually and all the other provinces have been called on to support every district of three gorges

- Financial risks control and arrangement: since 1994, the profits of Gezhouba Hydroelectric Station have transferred into the Three Gorgers Project construction fund directly. Till the foundation of "China Yangtze Power Co. Ltd" in 2002, which based on the Gezhouba Power Station, it has controlled all the assets of Gezhouba Dam and Three Gorgers Dam. The corporation's IPO were issued in Shanghai Stock Exchange in 2003. Its collected money and profits became the main resource of construction fund. Besides, China Three Gorges Project Corporation has issued domestic bonds periodically to collect money

- What's more, sources for funding also include the Three Gorges Dam Construction Fund, policy loans from the China Development Bank, loans from domestic and foreign commercial banks, corporate bonds, and revenue from Three Gorges Dam before and after it are fully operational, with additional charges for electricity contributing to the Three Gorges Construction Fund. The additional charges are as follows: Every province receiving power from the Three Gorges Dam has to pay an additional charge of ¥7.00 per MWH. Provinces that will not receive power from the Three Gorges Dam have to pay an additional charge of ¥4.00 per MWH. Tibet does not have to pay any additional money

- Residual risks: It is obvious that Three Gorges Dam Project still have some residual risks that can not be totally eliminated, substituted of contractually transferred to others, such as the bad effect on ecological environment and historic interest around three gorges, a lot of people have to leave their hometown etc.

- From the process above, we know that project risk management is a very huge project by itself. From risk analysis to control, it still needs large numbers of works to do for the risk arrangement and supervision. The whole process can also be illustrated simply as follows in Figure 2.

*2.2 Beijing 2008 Olympic Games Network Construction Project (IT project)*

Olympic Games network construction is the prerequisite and basic condition of success of Olympic Games. As a international sports show, it will refer to massive important information .On the one hand, the network is used for guaranteeing the competition real-time information can transmit to background for data statistics in time, and on the other, it is used for the reporters from different countries can broadcast events to their countries.

Beijing 2008 Olympic Games Network Construction Project is taken by Sunny Information Technology Service, Inc. which is the subsidiary of Legend Group.

When preparing the project, they considered the main risks they would face carefully and then drew up some relevant plans.

2.2.1 Risk Analysis

- Network safety: Olympic Games Network includes five main networks: Beijing Olympic Games Organizing Committee Network, Sports Competition Network, Olympic Official Network, and Olympic Games Tickets Network. All these websites are facing various risks that may cause the whole network collapse, such as venomous interpolation

of websites, hostile attack on websites and computer viruses. Especially, the collapse of the sports competition network will lead to the competition data can not be recorded on time and then have a bad influence on the competition

- Lack of network talents: Olympic Games Networks construction is not an easy project which needs a lot of IT talents to do much high technology work for the network maintenance. Lack of professional staff still cannot make the project operate properly.

2.2.2 Risk Control and Arrangement

- Network safety risk control and arrangement: establish the model of "PDAC" for the information safety, include: Safety management center (Plan), System safety operating maintenance center (Do), safety assistant center (Action), and Safety supervision center (Check). Additionally, a network emergency response team which is made up of 30 anti-virus experts was set up, taking responsibility for the Olympic Games network safety directly

- Talents risk control and arrangement: Sunny Information Technology Service, Inc. signed contract with "Beidaqingniao" IT training center for providing professional staff. It guarantees that there will be enough qualified staff during the Olympic Games for the network supervision and maintenance

- Now, this network construction was completely certified as a very successful project and project risk management also put into fully play for the risks supervision to limit and reduce the risks occurrence possibilities in 2008 Olympic Games.

*2.3 Risk management in small project (small project and private project)*

Two cases above are risk management in big project, especially the Three Gorges Dam Project. The general guidance is that the bigger the project the more risks the project will have. On small projects, the risk management will probably have only a low level of application. Even though it is, the principles of risk management can still be used in small project.

A well-established general contractor won a very competitive three-year contract for extending a public sewage treatment plant. Mechanical and electrical work were subcontracted and represented about 15% and 2% respectively. Construction proceeded well until the electrical contractor suddenly went bankrupt. The cost of recovery added another 2% to the cost of the main contract, substantially eroding the general contractor's profit margin.

2.3.1 Risk analysis

Investigation of the bankruptcy revealed that both the electrical and mechanical subcontractors were involved in another large contract that had apparently gone sour. This gave rise to a significant probability that the mechanical contractor might also find itself in trouble, although there was no indication of that at the time. f use the formula: Risk = Potential Loss × Probability of Occurrence, the result reveal that the risk would be very dangerous.

2.3.2 Risk control and arrangement

The response plan consisted of making the necessary union arrangements to enable the main contractor to protect all materials and equipment on site that would be otherwise sequestered by the bankruptcy receiver. The main contractor also made plans to take over the work instantly should the mechanical contractor collapse.

About a year later, the mechanical contractor went under. The early warning paid off, work crews were immediately transferred to the main contractor's payroll, and work continued with less than an hour's interruption.

**3. Conclusion**

From the three cases above, we can conclude that the principles of project risk management can be used in different types of projects, big project, small project, construction project, IT project, public project, private project and development project etc. The general guidance is that when doing risk management it should be followed by right steps, choosing the right analysis methods, quantifying the risks precisely and formulating appropriate plan for risks control.

The last thing should be mentioned is even the principles of project risk management can be used on any type of project, but it is more beneficial for some projects than others. Some examples of projects which would benefit more from Project Risk Management are: (John Perry and Peter Simon)

- innovative, new technology projects
- projects requiring large capital outlay or investment
- fast-track projects
- projects which interrupt crucial revenue streams
- unusual agreements (legal, insurance or contractual)
- projects with sensitive issues (environment/ relocation)

- projects with stringent requirements (regulatory/safety)

- projects with important

- Political/economic/ financial parameters.

Therefore, the principles of project risk management can be applied to every type of project, the only problem is just some projects may benefit more from it and some are less.

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Table 1. Use of the risk formula to determine hazard priority

| Hazard no. | Loss potential | Probability | Risk | Ranking |
|:---:|:---:|:---:|:---:|:---:|
| 1 | £1m | 1 in 100 | £10 000 | 3 |
| 2 | £0.5m | 1 in 20 | £25 000 | 1 |
| 3 | £1.5m | 1 in 200 | £7500 | 4 |
| 4 | £0.20m | 1 in 10 | £20 000 | 2 |

Source: Practical risk management in the construction industry, Leslie Edwards.
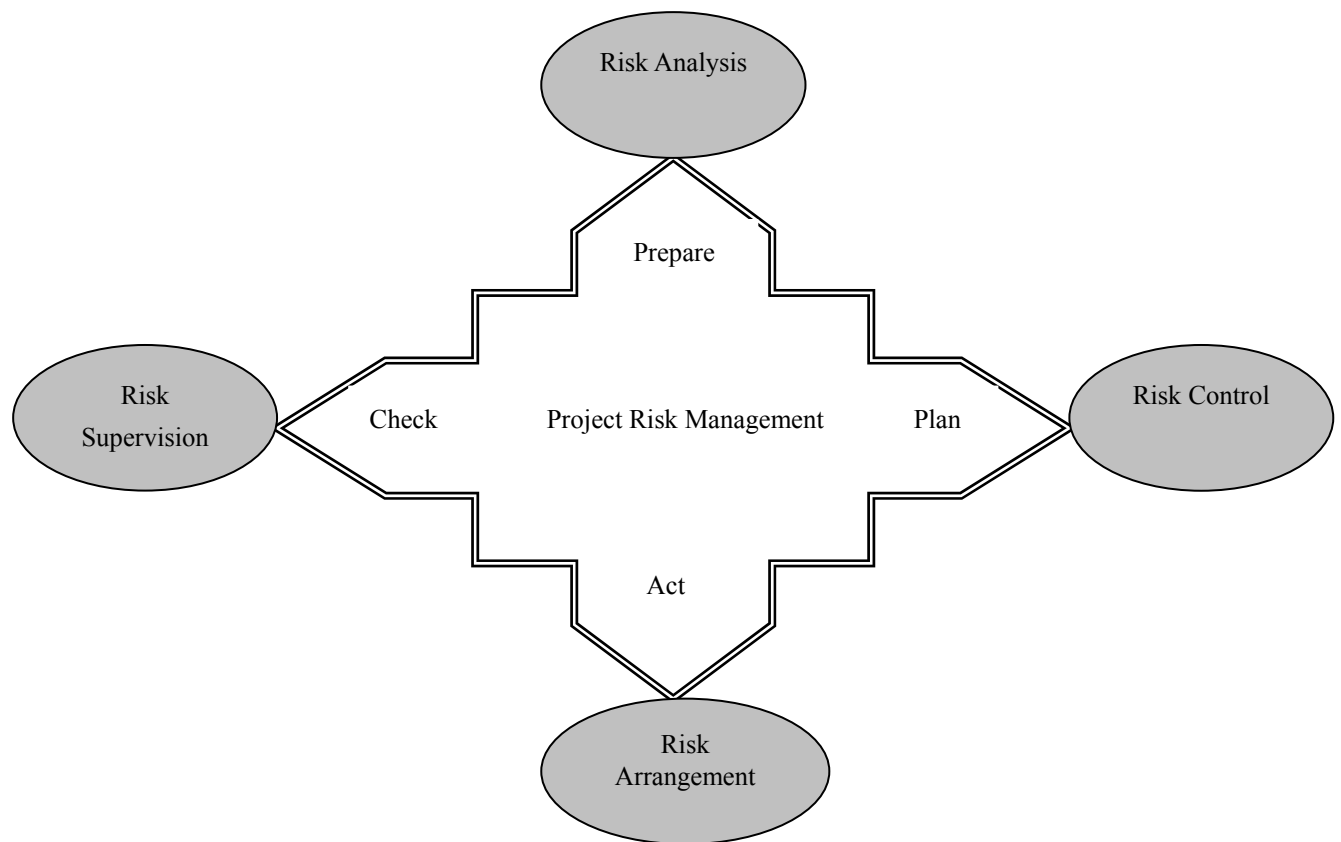
Figure 1. Project risk management process

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                        ┌──────────────────────────┐
                        │      1 Risk Analysis     │
                        └──────────────────────────┘
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| Physical risks: earthquake | Financial risks: very high cost | Social risks: immigrants' arrangements | Input risks: a lotof material and workforce |

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                        ┌──────────────────────────────┐
                        │ 2 Risk Control and Arrangement │
                        └──────────────────────────────┘
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| Transferring risks through contractual and insurance | Drawing up contingency plans | Government policy and funds support | Reducing risks by monitoring and forecast | Residual risks: limit the damage as much as possible |

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                        ┌──────────────────────────┐
                        │    3 Risk supervising    │
                        └──────────────────────────┘
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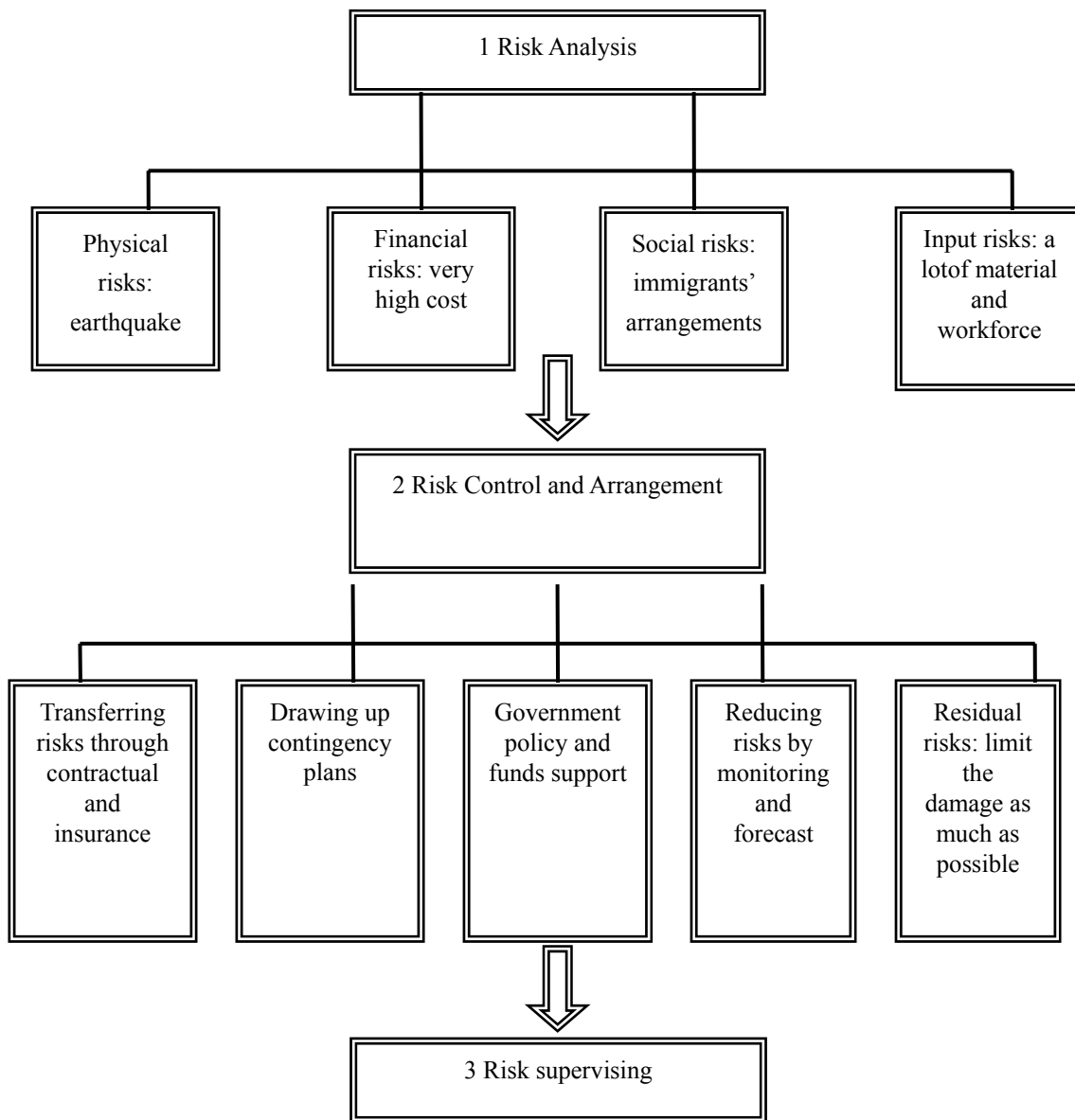
Figure 2. Three Gorges Dam Project risk management process chart

# The Commoditization of White Collar Work

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**Abstract**

The next wave is already upon us, although it still has a very long way to run. White collar work is now well on the way to commoditization. The combination of an aging population, the increased codification of work through the standardization of processes, the increasing sophistication and scope and scale of IT systems and the availability of a cheap and well educated labour force from across the world means that much of the routine work that is now undertaken by well paid staffers will eventually be automated, outsourced, offshored or executed by less expensive personnel. Be warned, this is not just about the simple and routine activities undertaken by administrative personnel. As we will see later, most white collar work is potentially up for grabs, including lawyers, consultants and even surgeons. In fact, any work which does not require high level expertise has the potential to be commoditized.

**Keywords:** Commoditization, Demographic, Economic migration, Offshoring, White collar workplace

## 1. Why now?

First it is important to point out that the commoditization of white collar work is part of the natural progression. As the successive waves have moved up the value chain, it was only a matter of time before white collar work itself could be sufficiently codified to allow it to become commoditized. White collar work is now commoditizable for the following reasons:

• The impact of technology, especially in terms of the ability to take work out of the system

• The development and introduction of standards, standard operating procedures and the creation of standardized and hence commoditized processes

• The changing nature of employment and especially that which has occurred since the downsizing of corporations during the 1990s (more on this shortly)

• The changing demographic dynamics and the associated imbalances this causes within organizations (at the micro level) and nations (at the macro level).

Before moving onto the specific aspects of white collar commoditization and the types of activity that can be considered commoditizable, as well as those which could be considered immune, it is important to explore the changing nature of work – the workplace factors, and the shifting patterns of demographic change – the population factors, in more detail.

## 2. The workplace factors

Any discussion about the commoditization of white collar work should address the changing nature of work and of the workplace in general because both have made it easier for employers to exploit the benefits associated with labour arbitrage. The workforce factors act as a foundation on which white collar commoditization can thrive because they set the tone, culture and the precedents which permit organizations to push the boundaries and limits of the employment relationship and ultimately the flexibility of its employees. There are four factors worth discussing:

• The changing nature of work and careers

• The end of the psychological contract and the eroding of the 1950's image of a job for life and the gold watch after 30 years of service

• The intensification of work resulting from the increased use of mobile and connected technologies

- The reduction in work-based benefits, which is placing greater financial risk on the employee, especially in terms of retirement.

## 3. The changing nature of work – the golden age is over

Organizations have always been concerned about their competitiveness. Taking this seriously has meant developing the right products and services, recruiting and retaining the best talent and keeping an eye on the future to ensure they are appropriately positioned to meet the challenges ahead. In the past this was a relatively simple exercise because the economic backdrop was one of steady growth and relative stability, especially following the Second World War; long considered to be the golden age of employment. This stability led to the creation of benevolent and paternalistic organizational cultures that looked after their staff and pretty much managed their careers for them. Employees could turn up for work in the knowledge that unless they did something seriously wrong, they would be guaranteed a job for life. They were willing to place their future careers in the hands of their employers and as long as they did a solid day's work and kept their noses clean they would gradually move up the hierarchy over the course of their career. If they were very lucky they might even reach the board of directors.

It is clear that the nature of work has changed irrevocably and that the comfortable days of working with a single employer for 30 years and following a well-trodden career path are over. The business and economic environments are now more turbulent than they have ever been, with the long term cyclical patterns in the economy being replaced by uncertainty, unpredictability and short-term cycles. The current issues over energy supply, the ongoing war on terror and the US deficit are all adding to this uncertainty. This turbulence and unpredictability is increasingly reflected in our working lives. We now have to have to contend with information overload, heightened insecurity, reduced job tenure and the loss of the incremental steps that had previously defined our careers. In addition, the reduction in organizational hierarchies through downsizing has reduced the sources of power within the workplace, thereby making it more difficult to determine an effective and obvious path to the top.

Recent change in the workplace has arisen from the combined effects of globalization and the increasingly rapid advance of technology. One could not exist without the other. With this backdrop, organizations have to consider how they can remain competitive in a commercial environment with fewer constraints and increased competition. Many have responded by merging with, or acquiring, other organizations that were better placed to deliver a truly global service. Others sought out the cheapest labour with which to manufacture their goods, leading to a massive reduction in the manufacturing sectors of the industrialised world as work was transferred to the cheaper economies of the Far East, Central Asia and, more recently, China. With further advances in technology since the 1970s, globalization is increasingly facilitating the transfer of knowledge and ensuring white collar work follows blue collar work around the world. And, with the emerging economies of Asia providing a ready supply of well-educated cheap labour, corporations are beginning to source their knowledge workers from overseas rather than at home, especially for those roles that do not require high levels of face-to-face contact.

## 4. The end of the psychological contract

For decades technology just affected blue-collar workers; office workers were mainly immune. They could sit in their warm offices pushing paper around their desks, attending important meetings and developing ideas and strategies for their companies in the knowledge they were far too clever or too important to suffer the same fate as their blue collar compatriots. The 1990s reengineering revolution put paid to that, as it stripped millions of office workers of their jobs, especially middle and senior managers. Although the impact was devastating for the many affected   the increase in unemployment amongst the mid-career middle managers was largely offset and hence invisible within unemployment statistics by the return to work of so many wives, many of whom were forced back into work to provide some stability to the household balance sheet. This has been highlighted by a number of observers, who claim that this shift is creating a double income trap for many married and co-habiting couples.

Downsizing destroyed much of the cultural glue that held organizations together. It has resulted in the contract between employer and employee becoming too one-sided. Instead of being balanced with the employer offering security in exchange for commitment and responsiveness, it has become one in which the employer still expects commitment and flexibility, but only offers insecurity in return. Although one sided, staff are more likely to show less loyalty to their employer, as when employment markets are tight, staff are more likely to change jobs than remain where they are; something confirmed by the Society for Human Resource Management. They found that 83 per cent of employees were extremely or somewhat likely to search for a new job when the economy is high performing. There is no doubt that individuals increasingly see themselves as having a series of transactions with their employers and recognise that it is they, not their employers that have to manage their own careers – however they define them. This is a real break from the past, when people were content to stay where they were and were less likely to take some risk by moving companies. What is of greater concern to employers is that employees are generally less committed and apart from those at, or near the top, are no longer willing to go that extra mile, especially when they see little in the way of rewards for the extra effort. Over time this breeds mediocrity and lower performance which can have significant impacts on the bottom line because employees turn up for work, switch off and do the bare minimum to get the job done.

This loss of the strong bond between employer and employee has affected both organizations and staff alike. No longer

comfortable and cohesive places that encouraged loyalty and commitment the working environment has become one of fear and distrust with a culture of self-interest and self-preservation. Fear rules the roost for many employees; always looking over their shoulders to see if they will be the next to face the axe. Unwilling to speak out, drive forward controversial ideas or raise risks, employees are more likely to keep their mouths shut, tow the party line and keep their heads down.

## 5. The intensification of work

The combined effect of technological change and globalization has resulted in the significant intensification of work which is far less positive because it serves to create new bad jobs. Intensification is evidenced by the increasing hours people are working and the degree to which work now spills over to leisure time, often referred to as job spill. Longer working hours is a common problem across the Western economies and increasingly the Eastern economies and results from the heightened insecurity that has come with downsizing and more recently outsourcing and offshoring. Americans are working longer and harder than ever before - 25 million now work more than 49 hours a week, with a large number working a lot more besides; 11 million spend 60 hours or more at work. The same is true for the United Kingdom which has the longest working hours in Europe; 91 per cent of British managers now work more than their contracted hours. No one is immune; in working couples nearly 46 per cent of men and 32 per cent of woman work more hours than they would like to. Of course, longer working hours is not a purely a Western phenomenon, as they are increasingly evident elsewhere, especially within Indian call centres, where 10 to 14 hour workdays are typical. But when compared to China, all this pales into insignificance. Consider what happens at one of China's largest telecom manufacturers; every employee is issued with a mattress so that they can grab a nap beneath their desks, day or night, when they are overcome by exhaustion from their excessive working hours. This is euphemistically known as the mattress culture by the workers. Rolled up to the national level and things start to look grim as up to one million Chinese die every year from overwork. And, unlike in the West, all sectors of the economy are subject to overwork, even the cosy and rarefied world of academia, where 135 professors and other academic staff have died from overwork in the past five years.

The problem is that longer working hours both inside and outside of work means that there is less time to relax. With work spilling over to weekends and evenings, white-collar workers are finding themselves squeezed with little or no time to unwind and recover from the working day. The traditional patterns of working life have changed so much, that for many it is virtually impossible to distinguish between the office and the home. Vacations too are being reduced through cost cutting initiatives by organizations as they struggle to remain competitive and by employees who believe they are too busy or too important to take them. And for many the office and their work schedule travels with them. It is not uncommon for executives to conduct teleconferences from the beach or poolside, and take their laptops on holiday so that they can deal with urgent issues and emails.

Indeed, with less time to relax workers are experiencing increasing levels of stress and increased health and safety concerns. Modern 24/7 workplaces put more employees at risk from health problems such as high blood pressure, cardiovascular disease and alcoholism. Stress is a way of life for many white-collar workers irrespective of age or position within the corporate hierarchy.

## 6. Where have the benefits gone?

The final workplace factor to consider is the reduction in benefits from employers as they pursue shareholder value, seek ways to continue to drive up profits and reduce the long term burden of looking after an aging workforce who may spend longer in retirement than they did in work. Therefore at the same time as expecting more from their employees, employers are scaling back the rewards they provide and people are earning less not more. Middle income families in America saw their income rise by just $780 between 1988 and 1998, and although median income for US households increased by 1.1 per cent to $46,326 in 2005, earnings fell for both full time working men and women by 1.8 and 1.3 per cent respectively. The increase in income was masked by people juggling more than one job and the drop highlights a concern that the US economy is not generating sufficient high paying job. Indeed, if you take into account where the bulk of the jobs are being created, you can see why; the increase in employment has not been at the top end. Far from it, most of the new jobs have been in low end service economy companies, where wages are low and opportunities limited.

- Food preparation

- Waiters and waitresses
- Janitors and cleaners
- Nursing aides, orderlies and attendants
- Cashiers
- Customer service representatives
- Retails salespersons
- Registered nurses
- General and operational managers
- Postsecondary teachers.

In the United Kingdom and increasingly elsewhere, companies are cutting back on pension provision as they close down their defined benefits schemes (in which the final salary and number of years of service are used to calculate the pension that will be paid to the employee on retirement and until death) and replace these with defined contributions schemes (in which both the employer and employee contribute to a pension fund whose value at retirement depends on the level of contributions and the performance of the stock they purchase with the premiums). Every week there is another headline regarding the termination of defined benefits schemes. Even for those companies that choose to keep their defined benefits schemes open they tend to water down the benefits by using the average salary over an employees' career to calculate the pension and increasing the age at which the benefits can be taken. They also expect employees to pay more into the scheme and penalise them if they take early retirement.

## 7. Demographic factors

Whilst the impacts of the workplace factors are significant, interest in the commoditization of white collar work would not be as high if it were not for the more fundamental factors associated with the demographic changes playing out across the globe. The world's population is changing and fast: as the West declines into its old age, the East moves into adolescence and early maturity. The complementary spirals one down and the other up, is acting as an accelerator to commoditization. The principal factors worthy of discussion here are:

- The aging of the West

- The resurgence of the East

- Economic migration.

## 8. The aging of the West

The longevity of the human race has been increasing ever since we left the caves. During the Palaeolithic period life expectancy was typically 25 years and once the high death rates associated with babies and children had been stripped out this could be between 30 and 40; by 1725 this could be as high as 50 if you lived in the healthier conditions of North America, although the average was still only 32 and by 1900 Europeans could expect to live to the ripe old age of 48. This gradual increase changed during the latter half of the 20th century when by 1950 people could expect to be still around at 68 and by 1990 77 was the average age at death. The result, which had rarely been a problem in the past, is that the populations of the industrialised world are growing older at an alarming rate. The bulge of the 1960's baby boom and the secondary boom that began in the mid 1970s and peaked in 1990 is hurtling towards retirement.

This would not be such an issue if it wasn't for the corresponding reduction in birth rates which are, in many western countries below replacement levels. This fall is significant if only for the simple reason that rising populations in the West have for so long equated to prosperity – the gross domestic product (GDP) of any nation is equal to the sum of its labour force times the average output per worker. When populations fall, GDP falls unless productivity increases to compensate. This is why organizations take such a keen interest in the application of technology and governments in attracting intelligent migrants. It is clear that something has to change if the high level of prosperity that the West has enjoyed for long is to be sustained.

This double bind of aging populations and falling birth rates is causing enormous concern in Western economies:

- In the United Kingdom the number of people under 18 will fall from 7.0 to 6.6 million between now and 2011. At the same time the proportion aged 60 and over will increase from 12.1 to 14.0 million

- Unless Japanese women begin to have more children, the population is expected to shrink by 20 per cent by the middle of the century. The problem is now so critical that the Japanese have a name for it – "shoshika" which means a society without children

- For the last ten years Germany's birth rate has been below replacement levels. This will result in the population falling from 82 million to 59 million over the next 50 years and a third of this will be over 65. This is being further compounded by the departure of its qualified workers as they pursue better opportunities outside of Germany

- In June 2000 the Organization for Economic Cooperation and Development (OECD) forecast that the ratio of elderly (those aged over 65) to those of working age (those between the ages of 20 and 64) would nearly double in the next 50 years

- The European Commission projects that Europe's potential growth rate over the next 50 years will fall by 40 per cent due to the shrinking size of the workforce. And within 50 years there will be 100 million fewer people living in Europe. Worse still, even if Europe can attract 600,000 new immigrants every year its population will still decline by 96 million, and if it can't, by 139 million.

It is clear that all industrialized countries are destined to experience similar problems as birth rates continue to fall. But it also seems that such falls in birth rate are no longer restricted to the industrialized world. Recent United Nations data suggests that the developing world is following in the West's footsteps, with families choosing to have fewer and fewer children in return for greater economic prosperity (and consumption). With birth rates across the world expected to fall below replacement levels over the next few decades, the world's population is predicted to peak at 8 billion and then start to fall in the second half

of the 21st century. Some believe that the world's population will halve within 150 years. Take the UK's power and water infrastructure. Plans to enhance and maintain this over the next 10-15 years are at risk due to the imminent retirement of many of the most experienced members of the utility sector. Although the retirement of engineers with up to 20 years of experience is bad for the industry, this is exacerbated by the limited number of engineering graduates coming though the system and the poor salaries they are paid compared to those offered within the financial services sector.

This issue is particularly acute when we consider how hard it is to change an older workforce. According to the authors of *Workforce Crisis*, organizations will have to become better at managing and motivating the broad spectrum of employees they will have to employ. In their analysis, they focus on three cohorts: the baby boomers, where retirement or old age employment is a pressing concern, the generation X-ers who are mid-career, bored, stressed out, or just plain tired and the millennials who want everything their own way. Each group presents their own unique motivational concerns which have to be dealt with.

### 9. The resurgence of the East

Just as the West slides into old age, the East is beginning to pick up the pace and return to the position of global dominance they once held. Although some Asian nations face the same aging problems as the West, most notably Japan and increasingly China, the majority have considerably more youthful populations. It is this youth that is providing the platform for growth and the necessary energy to pick up where the US and Europe are expected to leave off. Many Asian countries are completing the political, social and economic reforms that followed the end of World War II. Previously, social norms, the influence of communist regimes or similar draconian state dominance, and Western (mainly American) control prevented the Asian economies from expanding. The changes taking place are enabling the Asian economies to develop their own approaches to commerce and their own flavour of trade and ambition.

2005 was a milestone in global terms as it was the year when the combined outputs of the emerging economies accounted for more than half of the total world gross domestic product which means that the developed nations are no longer dominating the global economy. And although American companies initially led and dominated globalization, they are no longer the leaders they once were. The emergence of multinational companies from within China, India, Brazil and Russia are changing the very nature of the global economy as they shake up entire industries. What makes many of these companies different from their earlier counterparts from Korea and Japan is that they have had to learn to survive in a highly competitive and cutthroat environment, unprotected by government subsidies and protectionist policies (unlike their counterparts in the West). This has meant seeking out margins at prices that would never be sustained in the West. For example Indian drug manufacturers' charge as little as one per cent of what people pay in the US for their generic drugs. Others such as the Chinese Lenovo Group are big enough to buy those parts of western companies that are no longer considered profitable, as they demonstrated when they bought IBM's PC making business in 2005 for $11 billion. Sector leaders, so long based in the US and Europe are now being superseded by companies such as Tata Consultancy Services (technology), SAB Miller (brewing), Embraer (aircraft manufacturing), América Móvil (telecoms), CNOOC (oil and gas) and Sadia (food and drink).

Although their principal advantage lies in the low labour costs, there are other factors working in their favour including a larger pool of labour from which to draw their staff, a keener workforce who sees economic gain from working with prestigious multinational companies and a strong innovative streak. Unsurprisingly, the Eastern economies are considering clubbing together to create their own trading bloc which will rival NAFTA (the North American Free Trade Agreement) and the EU (European Union) – see Table 1.

The free-trade idea is being spearheaded by the Japanese who are promising a ten billion Yen ($95 million) study to assess how it will work. The goal is to have the trading bloc up and running by 2015 and when fully functioning is expected to increase the total economic output of its members by $215 billion.

### 10. Economic migration

According to the World Bank's latest *Economic Prospects* report, the pressure for migration from poor to rich countries is a permanent feature of our integrating world. The share of migrants in the populations of high-income countries has risen from 4.4 per cent in 1960 to 11.4 per cent in 2005.

Such sustained levels of economic migration are creating significant tensions in the host nations including difficulties associated with social integration, the increasing number of illegal immigrants, and the problems the unskilled face as their jobs are taken by immigrants who are willing to work for less pay in order to gain a foothold in the economy. When you consider the significant disparities in incomes between the home and host nations, it soon becomes obvious why the immigrants want to move to the industrialised economies. Take Mexicans, who are coming to America in greater numbers than ever before. With 40 per cent of Mexico's 106 million people earning less than $2 a day, the minimum wage of $41 a day in the United States looks very attractive and presents a massive increase in income and standard of living.

Economic migration has traditionally focused on the lower end of the economy. As economies grow and move away from blue collar to white collar work, the desire to undertake the lower forms of employment drops; people don't want to be a server in a fast food restaurant for a few bucks an hour and would rather claim unemployment benefits, where they are often better off. Migrants however, are more than willing to do such work because it provides them with a chance to get a toehold in the

economy and provide for their families back home. This highlights a major problem for many mature economies – what to with the unskilled, who are increasingly being alienated and pushed to the periphery of the economy.

In the modern economy a lack of skill is a major impediment to finding work and despite the strength of the economies in the US, UK, Germany and Canada, unemployment is rising. In part this is due to the high levels of economic migration, which includes not just the skilled migrants but also the uneducated. It also is also due to the shift to other forms of labour which require brains not brawn. Figures released by the US Labor Department shows that the unemployment rate for those who received education below senior high was 6.5 per cent in November 2000 but in January 2003 this had risen to 9.2 per cent. It is unlikely that this trend will end any time soon. And it will continue to increase the numbers of working poor in the United States, which currently stands at 37 million, a number which represents 12.7 per cent of the population and is the highest percentage in the industrialised world.

There has also been plenty of press coverage concerning the lack of workplace skills, which includes basic maths and English, of both school leavers and graduates. Some believe that the education system is dumbing down our future workers and because of this fewer are leaving school and university with the requisite skills necessary to deal with increasingly global and complex working environments. Whatever the arguments for or against this perception, it is clear that organizations in countries such as Germany, the United Kingdom, America, Canada and others will continue to experience massive shortfalls in both the number and quality of employees. With insufficient home grown talent, many have little choice but to look elsewhere and many may have no choice but to consider their workers a commodity which is traded and used like any other.

## 11. Implications and responses – the rise of the commoditized workforce

Dealing with the combined effects of the changing nature of work and attitude towards it as well as the shifts in the demographic composition of society and hence work is not easy. But what is clear is that the economic dominance of the West and East is shifting as downward mobility in the former is beginning to lose ground to the upward mobility of the latter (Figure 1).

Downward mobility, where the living standards of the workforce reduce over time, was first identified during the layoffs that came with the waves of downsizing that hit corporate America and Europe during the 1980s and 1990s. These days it is less publicised but more prevalent and no longer restricted to the working class, as middle class professionals often find themselves in this difficult position. The downwardly mobile often themselves on reduced incomes following a forced closure, redundancy or shift to an outsourcer and this is often accompanied by an inability to find a new role that meets their expectations both economically and from the perspective of work content. According to one analysis wage loss due to displacement is significant and persistent. Contrast this with the upward mobility of the East where incomes were and still are very low by western standards, but for many are rising. For the workers moving into a white collar job, even if it entails the near sweatshop conditions of a call centre, it represents a significant step up the career ladder which brings with it high rewards and benefits. For example, an Indian call centre employee may only earn $300 a month, a fraction of the $3,000-$5,000 earned by someone in the US, but the earnings are so good that they are considered wealthy and socially mobile.

Another factor which is also impacting the degree to which downward and upward mobility is taking hold is the supply and demand of an educated workforce. With the Supply of graduates in the west now outstripping demand, the bachelor degree is fast becoming the new high school diploma and, like the holders of non-tertiary qualifications, those with just a degree are no longer capable of maintaining a comfortable lifestyle. At the same time the masters degree is taking the place of the bachelors degree and it is only the super-educated (often those with PhDs) that have any chance of a full and satisfying career. This is reflected in the number of students following advanced degrees, such as MBAs, which has grown considerably, more than those taking bachelor degrees – 58 per cent compared to 25 per cent. Ironically, with so many now pursuing MBAs their value is decreasing and the knowledge advantage is eroding as every MBA programme teaches exactly the same thing, which implies that the head start that knowledge once gave us is shrinking. The median annual earnings of graduates and post graduates have declined. In 1972 a male holding a graduate or post graduate qualification earned a median income of $52,087 (the female equivalent was $36,850) and in 2002 this had dropped to $48,955 ($40,021). One of the reasons why incomes are dropping is the changing nature of the work available to graduates, which as we saw earlier is increasingly within the service sector. But there are three other reasons. The first is that economic migration and the effect of globalization in general has generated a downward pressure on the incomes of all but the most talented. A study by Harvard University confirmed this and showed that immigrant labour has reduced the wages of Americans performing low-skilled jobs by 7.4 per cent. When you consider that more than one billion unskilled, low-paid workers have entered the workforce over the recent past, this shouldn't come as much of a surprise. The second, as mentioned above, is that that there are just too many graduates chasing too few jobs that genuinely require graduate level skills. It is clear that the combined effects of technology, process standardisation and the competition coming out of the Indian subcontinent and China is reducing the need for home-grown graduates. With Indian graduates costing approximately 12 per cent of their American counterparts the economic impact is obvious. But then if you factor in the number of hours they work (2,350 hours per year against 1,900 for the American) you can buy almost ten Indian graduates for the price of one American. The third reason is that there are not enough science and technology graduates – the

right type of graduate. Although the number of graduates may be increasing, those with core science and technology subjects are decreasing and it is this that is worrying organizations and policy makers both sides of the Atlantic. The Confederation of British Industry likens this to a "car crash in slow motion". Indeed the lack of graduates is already forcing some companies to move offshore.

Contrast this with what is happening in places like India and China who are churning out huge numbers of graduates, many of which have core science and technology backgrounds. Between them, India and China produce one million engineering graduates a year compared with the 170,000 produced by the US and Europe combined, and 2.8 million Chinese students graduate every year. Chinese and Indian graduates are also more willing to relocate to anywhere around the world which makes them the largest offshore talent pool available to any organization struggling to attract and retain the skilled personnel it needs to compete. Companies such as GE, SAP and Google have launched Chinese and Indian research centres to tap into this highly intelligent community but without the high costs associated with creating something similar in the US.

This brings us to the point where the argument for commoditization becomes a very strong one. With skills and capability gaps becoming more prevalent in the West, despite the increasing number of workers with degrees, and a surfeit of skilled graduates in the East the ability to source intelligent workers from overseas either through mechanisms such as outsourcing and offshoring or through economic migration is providing a solid platform from which white collar work can be commoditized. As the Eastern economies mature and move into the service and knowledge industries, the requirement to pay large salaries to American, British or European staff will, at least from a purely economic standpoint, no longer be necessary. Anyone wanting to pursue a productive career must now be willing to participate in the international economy regardless of their home country or employer. The only fly in the ointment is the recent trend for the overseas graduates, who have been educated in the top universities of America and Europe, to return home to pursue better and more exciting opportunities. The West is fast becoming a net exporter of the intellectual capital on which the future success of their economies depends. If this continues, the economic problems associated with an aging workforce will only get worse.

## 12. Offshoring white collar work

Companies offshore for a number of reasons, including:

- Taking advantage of lower labour costs found elsewhere in the world

- Transferring work which their employees are unwilling to do

- Accessing other markets; taking advantage of a 24/7 working model, which uses the three main time zones of the US, Europe and Asia

- Using unique skills which cannot be sourced within the home country.

Although once restricted to blue collar work, outsourcing and offshoring is increasingly affecting traditional white collar work and high-value jobs such as those associated with IT, accountancy, law, engineering design, medical diagnosis, finance and business consulting. It is predicted that up to $151 billion in wages will be shifted from the US to the lower wage countries by 2015 and 550 of the 700 service job categories in the US will be affected in one way or another. Household names like Ford, General Electric, General Motors, Accenture, American Express, AOL, Apple, Bank of America, Boeing, Cisco Systems, Coca-Cola Goldman Sachs, Hershey, Johnson & Johnson, Kellogg, Kimberly-Clark, Office Depot and Pfizer are exploring and exploiting offshoring. It is clear from this list that offshoring is affecting many organizations and it will, over time, affect many more. Pick up any newspaper any you will read about the latest trend of shipping out highly paid office work to other countries:

- To provide better value for money for its licence fee, the BBC is considering shifting support jobs – in essence, Human Resources, IT and finance offshore to locations such as India to cut costs. At the same time it is spending more and more on its most talented employees

- Medical records and patient diagnoses are increasingly being sent over to India where they are transcribed and sent back as documents to be inserted into the patient's medical file by the time the doctor starts his next round

- In response to rising costs mortgage companies are starting to offshore much of the basic processing and administration to India. It is believed that between 50 and 80 per cent of mortgage related work can be offshored.

Alan Blinder, an economist at Princeton University believes that the majority of economists are underestimating the disruptive effects of offshoring and that at least two to three times as many service jobs will be at risk. This implies that perhaps up to 30 per cent of jobs could be offshored. Of greater interest however is that it is the middle ranking jobs and professions that are most at risk. The offshoring of this type of work has a tendency to shift relative labour demand away from the medium- and high-skill worker towards low-skill workers. So while white collar offshoring is still small when compared to the offshoring of manufacturing, its bias against the skilled worker is a worrying trend. The top end and bottom end of the jobs spectrum are largely immune from offshoring; after all you cannot offshore a cab driver. Any job which can be standardized is being squeezed the hardest by offshoring.

For now at least outsourcing and offshoring is creating a clear division of labour. For those who undertake routine and repetitive tasks it is highly likely that their work will be transferred to the lower wage economies of the world. With improved technology and increasing bandwidth it is just as easy for someone in India or China to complete a routine task as an American, Britain or European. This includes routine work associated with law, engineering, IT and many others. It's unfortunate but anyone who works in this manner is on the path of downward mobility. For those who perform non-routine, creative or innovative tasks, such as research scientists, financiers, marketers and architects, the offshoring trend will pass them by; for now at least. However, as technology and standards continue to routinize work and the number of intelligent science and technology graduates from China and India increase, this comfortable position may well change.

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Table 1. Trade blocs

|  | **Asian** | **NAFTA** | **EU** |
|---|---|---|---|
| Members | Japan, China, South Korea, New Zealand, Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, the Philippines, Vietnam | Canada, United States, Mexico | Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, the Netherlands, United Kingdom |
| Population | 3.1 billion | 430.5 million | 460.1 million |
| Combined GDP | $10 trillion (US) | $12.9 trillion | $11.7 trillion |



Figure 1. Changing fortunes

- Old and declining populations
- Below replacement level birth rates
- Dearth of the "right" graduates
- High workforce costs

Downward mobility

The West

The East

Upward mobility

- Young and expanding populations
- Above replacement level birth rates
- Surplus of the "right" graduates
- Low workforce costs
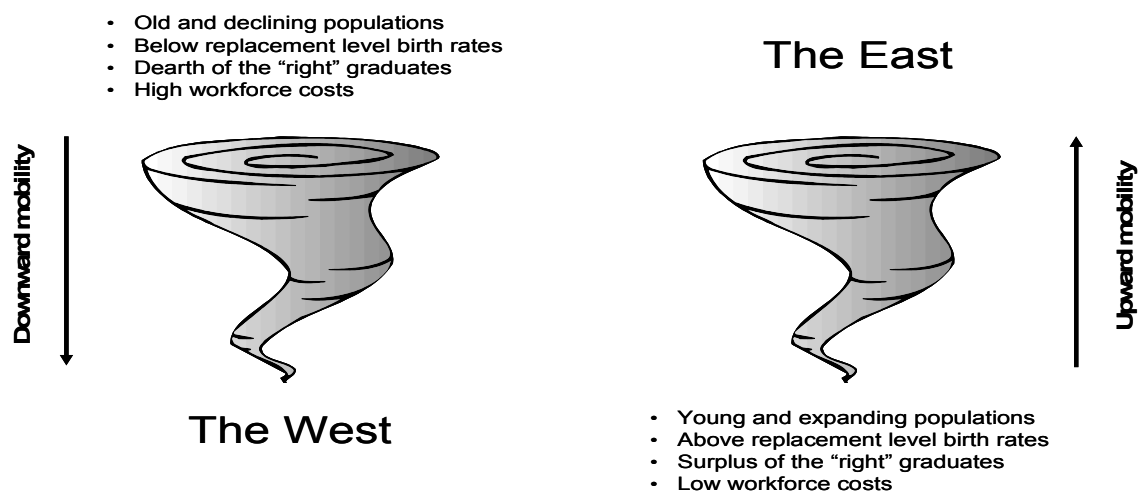
# A Knowledge Review: Implications

# for Future Research and Practical Application

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**Abstract**

Knowledge has evolved from being an abstract concept that resides within the human mind to a manageable resource that is capable of contributing to organisational competitive advantage. Research in the field is largely divergent, both in methodological execution and in objective, resulting in potential for a widening of the gulf between scholastic endeavour and practical value. A 'Knowledge Matrix' based upon Tranfield and Starkey's (1998) social and cognitive dimensional conceptualisation is used to depict the theory-practice gaps that exist in the knowledge management literature.

**Keywords:** Knowledge, Knowledge management, Research, Practical application

## 1. Introduction

It was not until recently that knowledge came to be viewed as a useful organisational resource (Alavi and Leidner, 2001), a knowledge economy is developing and knowledge management is gaining recognition amongst scholars and enterprises (Chen and Chen, 2006). Organisations are beginning to understand that competitiveness hinges on the effective management of intellectual resources (Davenport and Grover, 2001). It is becoming clear that the effective utilisation of knowledge will be a significant source of competitive advantage (Pfeffer and Sutton, 1999) and the integration of individuals' knowledge into organisational strategy (Nonaka, 2007) will become a basic requirement for the future.

Some of the most influential works within this field, including Brown and Duguid (1991), Dyer and Nobeoka (2000), and Wenger (2000), are divergent due to their inability to agree upon a common meaning of the key terms. These influential works have encouraged current research (Chua and Pan, 2006; Hew and Hara, 2007) to expand rapidly and overlap into more diverse subject areas, thus broadening the boundaries of the communities of practice stream of research. There is now a tension around whether knowledge management should be centred at management, employees or management scholars, and ultimately, whether knowledge management should be allowed to slip into what March (2004) terms a 'fragmentation trap'. Alvesson and Kärreman (2001) recognise that the field is in danger of becoming divided through focussing upon the management of people or information, rather than as a practice attuned towards facilitating knowledge creation.

### 1.1 Birth

The nature of knowledge has been conceptualised and debated for millennia but the emergence of knowledge as a factor to be considered in modern business is perhaps best signposted by the works of Polanyi (1966, 1983). It was as a result of a crossbreeding between the fields of organisational learning (Adler and Clark, 1991; Arrow, 1962) and quality management (Linderman, Schroeder, Zaheer, Liedtke and Choo, 2004, Sousa and Voss, 2002) that knowledge management came to be: Hedlund (1994) for example, examined quality circles and organisational learning to discover what prohibits knowledge dispersion within organisations.

The birth of knowledge management as a practicable business discipline may be connected chronologically with Nonaka's (1994) (SECI) theory of knowledge transfer that has become the fundamental platform for much subsequent enquiry (Grant, 1996a; 1996b; Spender, 1996; Szulanski, 1996). These works have contributed to the development of the theoretical aspect of knowledge, often further connecting the field to pre-established research streams.

### 1.2 Renaissance

The second critical time period can be specifically linked to the mid and late 1990s. This particular period witnessed several crucial developments which are entailed through the works of Grant (1996b), Spender (1996), and Szulanski

(1996). It was during this short time span that two new streams of research were developed within the knowledge management spectrum, changing its boundaries and expanding it into new areas.

The prominent authors of the 1990s period contributed significant epistemological evidence towards the importance of knowledge as a process and how the coordination of knowledge was necessary in order to achieve a strategic competitive advantage (Grant, 1996a). Davenport and Prusak (1998) highlight the development of knowledge markets, where individuals possess the power to barter with knowledge. The works of authors such as Conner and Prahalad (1996) and Grant (1996a, b) and Spender (1996) have also achieved significant progress in bridging the gap between a resource based view and knowledge based view of the firm.

The SECI model has faced numerous criticisms during this time, made upon practical and epistemological grounds (Gourlay, 2006; Griffin, Shaw and Stacey, 2001; McAdam and McCreedy, 1999). The model is observed to omit a satisfactory account of tacit knowledge and its transfer, it is based upon a far too subjective methodology, and is far too simplistic to be applied to organisations in practice. Knowledge management seems to have been evolving as a result of a continuous tension between research that is either radically subjective or radically objective (Burrell and Morgan, 1979), that is to say, the paradigms being produced are contradictory, or at least incommensurable, and hence cannot successfully collectively contribute toward furthering our understanding.

This continuous divergence of ideas means that there is a lack of regulation of knowledge management literature. The bottom line being that the radical paradigms created by authors such as Wenger (1998) have led to enhanced focus upon the Socialization element of SECI model. This, in combination with the works of Wenger (2000) and Dyer and Nobeoka (2001) created a new revival of knowledge management, in such a way that a new research stream gained prominence and attention.

*1.3 Second Renaissance*

The latest stream of research to surface from the sea of knowledge management literature is the work from the communities of practice sphere. Even though it is possible to argue that the true rudiments of this field may be traced back to Lave and Wenger (1991) it is not until much later that this field became generally acknowledged.

Anand, Gardner and Morris (2007) and Van de Ven and Johnson (2006) both focus on bridging the gap between theory and practice in an attempt to make the current communities of practice research more applicable across various environments: Anand et al (2007) specifically attempt to qualitatively determine how knowledge-based innovative structures may be embedded within various communities of practice existing in organisations. These qualitative and more practically based approaches might suggest that the latest research such as Hew's and Hara's (2007) or Kane's and Alavi's (2007) are jointly attempting to tip a fragile balance towards a form of research that has more practical value to business.

To illustrate this it is appropriate to pay particular attention to how the concept of communities of practice (CoP) has altered in its meaning over time. Brown and Duguid (1991) have contributed to the establishment of the concept of CoP by explaining it in terms of how knowledge flows most effectively when it moves through networks of people who have the same interests, even though they might not be in the same part of an organisation. On the other hand, Cox (2005) explains how Wenger (1998) embarks upon a definition of communities of practice that discusses social relations and meanings that coalesce about a work process when it is appropriated by participants. It is possible to see this definition broaden the sense of communities of practice to the concept of social relations and work processes.

In its most recent sense, the notion of communities of practice has deviated further. Cross, Laseter, Parker and Velasquez (2006) relate to this latest stream of research as one of 'informal networks'. This highlights how the meaning of communities of practice has managed to diverge itself from its more specific definition concerning knowledge flows between people with similar interests to simply the supposition that it revolves around informal networks

## 2. The Knowledge Matrix

Based on Tranfield's and Starkey's (1998) social and cognitive dimensions, it is possible to create a matrix which analyses and exposes some of the fragile tensions that have emerged within knowledge management and proposes an explanation for the existence of major theory–practice gaps in the knowledge management literature (Figure 1).

An analysis of the matrix suggests that different knowledge management concepts are located at different stages of Tranfield's (2002) modal scale of knowledge production. Whereas mode 1 is characterised by a concrete epistemological base and knowledge aimed at researchers; the 'pure' axis in the model, mode 2 is centred around finding short term solutions and theory application; the 'applied' axis within the matrix. The second mode also deals with managers as beneficiaries. Thus, the notion of knowledge markets can be linked to a first stage of evolution; mode 1. This is because it has only commenced its development on a theoretical level and much of the literature remains divergent due to its inability to agree upon a common definition.

The concept of knowledge processes may be explained in light of a secondary stage of evolution, but still rests close to

mode 1 knowledge production as described by Wood (2001). It is convergent in terms of theory, however it appears that no significant attempts have been made in order to develop a concretely practical use for this concept to implement it in organisations. It currently bears no sense of purpose for practitioners; a requirement of mode 2 knowledge production. Nonaka's (1994) SECI concept on the other hand has been developed through theory which has converged to a certain extent. It has then been referred to through a more practical basis by Szulanski (1996), Grant (1997) or most recently by Lin (2007), Jashapara (2007) and Williams (2007), and forms a central part of knowledge management.

It is as a result of its critiques and initial contributions that the SECI model has made such a large impact and it is this notion that is important; the ability to contribute and trigger progress. Thus, this may be described as an advanced stage of the evolution of a knowledge management concept as it appears to be sufficiently developed in order to merit implementation on a practical level. It could be described in terms of mode 1.5 (Huff, 2000).

Remarkably, the notion of communities of practice is at stage that is difficult to relate to a mode 1 or mode 2 type of knowledge production. It would appear that some of the latest research, for example, that of Kane and Alavi (2007) or Nicholls and Cargill (2008) is attempting to build on its practical application, whilst the epistemological debate that stems from this research stream rests rather fragmented. In other words, the matrix suggests that theories should be sufficiently developed if there is to be effective progress on a practical level, highlighting a vital link between realising theory into practice.

According to the matrix, it seems likely that points of convergence to some extent lead to the evolution of knowledge management concepts. This suggests why it is difficult to explain the communities of practice stream in terms of the modal spectrum of knowledge production; it faces a lack of convergence in terms of its central definitions. Thus, it could be argued that convergence is required to shift concepts between modes of knowledge production.

Additionally, the communities of practice stream can be linked to the likes of a rational means of expansion as discussed by Abrahamson and Fairchild (1999), and Abrahamson (1991). In this case, theories are not being replaced by each other but rather diluted and weakened through a process of evolution. To emphasise this further, this development may be compared to the ripple effect explained by Scarbrough and Swan (2001). These theories together can be used to explain why the communities of practice research stream is divergent in terms of theory, but still being applied on a practical level. The ripple effect especially, explains that theories do not follow a particular pattern of behaviour, but may emerge and progress in any direction; a critical flaw in the matrix that is addressed in the conclusion.

In order to complete a review of this complex web of literature and further investigate the practical argument constructed by the matrix, three influential articles are mapped onto the knowledge matrix (Wenger, 2000; Dyer and Nobeoka, 2000; Anand et al, 2007) in order to show how the key tensions manifest themselves in individual pieces of work and thus draw them into embarking upon research in certain directions over others.

Wenger (2000) has attempted to confer to the view that the success of organisations depends on their ability to design themselves as social learning systems. This particular work lacks empirical foundations, and is limited in its attempts to aid managers in the application of knowledge management practices as it does not provide any practical evidence. It is highly conceptual in nature and builds on very few previous works; (Lave and Wenger, 1991; Wenger, 1998; McDermott, 1999). Wenger (2000) has attempted to bridge the theory-practice gap from a conceptual perspective centred around what Hodgkinson, Herriot and Anderson (2001) refer to as 'relevance', Dyer and Nobeoka (2000) on the other hand are empirically grounded and are more practical, developing their research around the effective management of coordinating principles needed to improve the effectiveness of networks. However their objective analyses are centred at researchers and academic scholars rather than management. Therefore, two of the most influential pieces of research stand on either side of an incomplete theory-practice bridge. This can significantly affect the impact future research will have within the field but may also lead to a fragmentation trap (Knudsen, 2003).

Anand et al (2007) have undertaken research that builds upon these two earlier works, but there appears to be a misconception of what management research should be concerned with. This latest piece of research obtains a definition of communities of practice from the work of Brown and Duguid (1991) rather than from later works which are themselves divergent in terms of their definitions. The limitations brought about by the consistent trend of divergence seen in every aspect of knowledge management as well as through the knowledge matrix and through a combination of these three works, has significant implications for organisations attempting to implement aspects of the communities of practice research stream into organisations.

**Firstly**, a concept developed from divergent theories is flawed in terms of consistency and prominence (Pfeffer, 1997) and is less likely to be implemented throughout organisations successfully.

**Secondly**, there is a misunderstanding between practitioners and scholars. Scholars do not understand what kind of knowledge practitioners need and practitioners themselves do not fully understand how to implement the research that is being developed.

**Thirdly**, the emergence of a fragmentation trap (Knudsen, 2003) and inconsistency in research might begin to diminish practitioners' confidence in the academic principles of knowledge management. This could in turn provoke a decline in research and authenticity of the research being developed.

**Fourthly**, it has been established that knowledge management is a transdisciplinary field. The inability to develop generalisable knowledge principles, as seen through Dyer and Nobeoka (2000) for example, means that research will not strengthen secondary disciplines that are related to knowledge management thus leading to further divergence.

**Finally**, to bridge the theory-practice gap research should aim to constantly shift towards mode two knowledge production since knowledge management is a field which ultimately aims to improve organisational effectiveness and competitive advantage.

### 3. Conclusions and recommendations

The knowledge matrix demonstrates the way in which the major knowledge management concepts are scattered amongst different stages of development. These stages vary in their ability to bridge theory and practice effectively. Since knowledge management is a field centred on organisations as primary beneficiaries, its theories must move towards mode 2 types of knowledge production. To be able to shift theories across modes, a certain amount of convergence is required. Specifically in terms of the communities of practice field, a generally accepted definition is required.

Nonetheless, divergence is as equally important if knowledge management develops through an evolutionary process. The specific works of Wenger (2000), Dyer and Nobeoka (2000) and Anand et al (2007) have expanded by highlighting that the communities of practice field is weak in both rigour and relevance. Hodgkinson et al. (2001) refer to this type of combination as 'puerile science'. These tensions contribute to a consistent divergence of research and are ultimately developing a 'fragmentation trap' (Knudsen, 2003).

Future research could investigate the amount of inter-dependence between the various research streams identified in this review and whether a stream that is in an earlier stage of development in relation to another is actually affecting the progress of other inter-connected streams of research.

As generalisability is an issue, future research will need to focus on evaluating the effectiveness of knowledge transfer across different industries. More specifically, and as Alavi and Leidner (2001) suggest, there is still a lack of empirical work which assesses the impact of culture upon communities of practice. Research could investigate the effectiveness of knowledge transfer in communities of practice in different cultural settings or different industries altogether.

This literature review has a crucial limitation. The matrix itself is grounded in the assumption that progress should occur through an evolutionary process as depicted by Popper (1972). It does not take into consideration that progress might be achieved through other means.

Knowledge management is at an early stage in its development. Much of the theory rests divergent and difficult to translate into practice due to epistemological arguments that stem from divergent literature. Many believe that this should be developed by scholars. However knowledge production is not only taking place in academic institutions as was once the case, organisations themselves are becoming recognised as vital sources of knowledge creation. This could complicate this subject further and broaden its boundaries. Knowledge management is passing through its own rites of passage.

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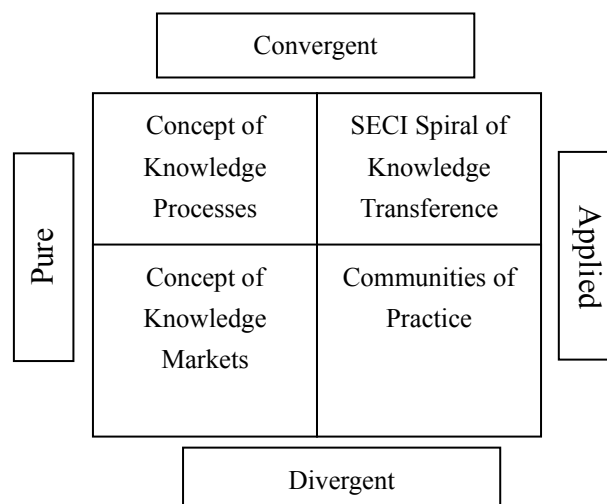
Figure 1. The Knowledge Matrix (based upon Tranfield and Starkey, 1998)

# Beyond Typologies of Global Value Chain Governance:

# the Accumulation of Technological Capabilities

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**Abstract**

Global value chains (GVC) offer opportunities and challenges for business developing in low income economies. The existing literature on GVC mainly focuses on two niches: governance and upgrading. The global buyers play as 'lead firm' in GVC context. However, the issues of upgrading activities at firm-level remain largely uncovered by the GVC literature. From the perspective of the literature on technological capabilities, this paper presents a framework to examine the levels of upgrading activities of producers in low income economies in the GVC quasi-governance structure.

**Keywords:** Global value chains, Governance, Upgrading, Technological capabilities

## 1. Introduction

Global value chains offer opportunities and challenges for business development in low-income economies. On the one hand, they can bring access to overseas markets, particularly developed world's market. On the other hand, entry to the value chain may be dependent on supplying low value products as low cost and a willingness to maintain at this level of activity. Consequently, a fundamental issue is that do GVC supports business growth in a low-income economy.

To date, the GVC research mainly focuses on two niches: governance and upgrading. It has offers a framework that is relevant on the analysis as well as a depth understanding of how low-income economies fashion development strategies to climb up a higher value niches in the global economy. Nevertheless, the GVC approach is still an embryonic theory of development. It is good to mention some further efforts will have to be done. The purpose of this paper is to demonstrate how accumulation of technological capabilities of local producers with the assistance of global buyers in GVC context.

This paper is organized as follows. In the next section we will present a critical review on governance and upgrading in the GVC literature. Section 3 we outline a framework of analysis by adopting technological capabilities literature into GVC context. Section 4 summarizes and concludes.

## 2. Previous GVC literature: governance and upgrading

The definition of 'governance' is firstly introduced by Gereffi (1994), defined as "authority and power relationship that determine how financial, material, and human resources are allocated and follow within a chain" (p.97). Governance is now central in GVC literature. Recent efforts on GVC governance have paid much attention rather than original contribution on non-hierarchical governance forms. A set of strategic parameters can be highlighted as characterizing governance types: 'what' or 'how' a product/service should be produced as well as 'when', 'how much' and even 'at the price'.    Drawing upon these parameters, Humphrey and Schmitz (2000) distinguish three possible types of governance: network, quasi-hierarchy and hierarchy. In the context of 'network' governance, there are relationships that encourage enterprises with complementary which jointly establish the key parameters. Within this governance, the term is frequently used to denote some form of co-operation between 'equal'.    Regarding other two types of governances,

there are relationships characterized by a remark asymmetry of competence and power distribution between lead firms and subordinate firms in the chain. A quasi-hierarchy governance can be explained that the lead firms tend to specify what is to be produced, how it is to produced and how the firm performance is to be monitored. They argue this type of governance is common to exist in developing countries. In most of cases, the global buyers act as lead firms. More importantly, Humphrey and Schmitz (2000) also suggest that global buyers tend to disclose their core competencies to local suppliers.

The most recent valuable governance models is published in an article entitled, ' *the governance of global value chain*' in the journal *Review of international political economy* (Gereffi, Humphrey, and Sturgeon, 2005). They go deeper into the analysis of factors affecting alternative types (see Figure 1). They point out four kinks of transactional linkages between lead firms and subordinate firms: market, modular, relational, captive and hierarchy. They also identify the idea that three key determinates of value chains relationships: the complexity of information and knowledge transfer required to sustain a particular transaction, especially with respect to product and process specifications; the extent to which this information knowledge can be codified and, therefore, transmitted efficiently and without transaction-specific investment between the parties to the transaction; the capabilities of actual and potential suppliers in relation to the requirements of the transaction.

Undoubtedly, the contribution to GVC governance can be presented essential insights from a wide range of perspectives. To some extent, coordination in the context of global value chains can be occur a variety of models; the advantage of lead firm within global value chains is based on their strong marketing power and their positioning in chain niches; GVC governance indicate the capability of one in the separate segments of the chains to affect or determine the survival of other businesses along the chains, and; Initially, the structures of GVC structure emerge in answer to two key demands. That is, an increasing number of firms are embedded into specifying the products that their suppliers need to produce, the more these firms are willing to concentrate on constructing on GVC governance structures to cooperate with their own suppliers. Besides, in the case of the emergence of risks as a result of the failures of their suppliers, they are more likely to directly intervene to cooperate or inspect the supplying chain.

The link between enterprise upgrading and GVC governance has also been made more explicit. That is, upgrading is also a key concept for value chain analysis. Global value chain discussion of upgrading has demonstrated two distinct directions (Gibbon, 2003):

- A wider vocabulary of upgrading possibilities has been produced, and it has made some efforts to develop analytical links between types of value chain governance structure and the prevalence of specific upgrading possibilities.

- From a chain-by-chain perspective, insertion into a value chain appears to offer higher and more stable returns to actors below the level of leading agent, and decides how those agents achieved there.

The first of these directions is taken by Humphrey and Schmitz (2002), who make a distinction between three types of upgrading, including process-, product- and functional upgrading:

- *Process upgrading* can be defined as "transforming inputs to outputs more efficiently by re-organising the production system or introducing superior technology".

- *Product upgrading* implies the "making of a product that is of better quality, more sophisticated or simply carries a better price".

- *Functional upgrading* can be described as "repositioning a given firm at a higher level of the value chain".

- Gereffi (1999) introduces two further types of upgrading called *inter-sector upgrading* and the *upgrading of marketing linkages* (which is less used).

- *Inter-sector upgrading* refers to " firms that apply the competence acquired in a particular function of a chain (e.g. competence in producing particular inputs, or in export marketing in a new sector";

- *Upgrading of marketing* linkages refers to a shift to higher value added chains and lead firms.

The explanation of upgrading activities have been frequently adopted by the literature on competitiveness (Porter 1990; Kaplinsky and Readman, 2001). A large number of recent researches are working on the identification of the differences between the "high" and "low road" to competitiveness with the ability of businesses to upgrade themselves (Pietrobelli and Rabellotti, 2004; Schmitz, 2006). Such researches share the common sense of urgency seeking for sustainable upgrading of industrial clusters in the developing countries.

In sum, the previous literature mainly focuses on two niches: governance and upgrading. The GVC literature on these two niches has offered a framework that is not only relevant on the analysis of firms, but also to an understanding of how countries fashion development strategies to attempt to move themselves into relatively high value, sustainable niches in the global economy. However, a number of issues still need to address (Gerffi, 2001). Many researchers have

been working on building up a comprehensive GVC theory. Among them, Morrison et al (2006) introducing a framework with bringing explicitly the technological capabilities framework into the GVC approach. In this framework, they recognize that there is little or nothing about the vertical dimension of upgrading activities in GVC literature. Unfortunately, a detailed discussion on this issue is absent. The purpose of this paper is to fill this gap.

## 3. A conceptual framework for vertical dimensions of upgrading activities

According to the existing literature, there is a common sense that with the supporting of global buyers, the upgrading of suppliers commences from process and product, then moves up to functional upgrading and end of all, to achieve competitiveness. With the reference to current approach, Humphrey and Schmitz (2000) discuss the prospect of upgrading related to the mode of GVC governance. They suggest that insertion into a quasi-hierarchical chain offers very favourable conditions for suppliers to process and upgrading, but hinder functional upgrading. In this case, when authors observe the upgrading activities, they tend to invariably link to the outcome of upgrading activities to competitiveness. However, draw from the literature of Humphrey and Schmitz (2000) and Bazan and Navas-Aleman, (2004), it is almost impossible for these buyers form domestic and other Third World can compete with the developed country's buyers. That is, it is hard to image that local suppliers can insert into a higher niche in GVC context by this upgrading path. Morrison, Pietrobelli and Rabellotti (2006) argue that there is a strong temptation of mixing causes and efforts in many empirical studies. They also claim that the classification of this upgrading is weak to translate into firm-level study. According to the literature on GVC, there are several types of GVC governance, encompassing market hierarchy (Gereffi et al, 2005). In line with the empirical studies for low income economies, the quasi-hierarchy governance is central. In this governance structure, it can be characterized by the significant dependence of small suppliers on large global buyers for advanced production methods, the design of production and marketing. This type of GVC governance is most common in low income economies. Although recent empirical studies explore that the local producers achieve product and process upgrading but not functional upgrading, (Bazan and Navas-Alemán, 2003), the global buyers still play as the lead firm. That is, the global buyers play a significant role for producers in low income economies to insert into global economies. For this reason, the framework of evaluation of vertical dimensions of upgrading activities should focus on the context of quasi hierarchy governance structure. To some extent, the framework aims to explore the issues, for example, how global buyers assist local producers from low income economies to climb up into higher value niches?

In the context of GVC, technological capability refers to the capacity of local supplier with the support of global buyers to generate and manage technological change. In this case, the technological change capability can explain: a body of knowledge and experience that is probably significantly distinguishing from what is needed to run existing systems. Innovative local suppliers are able to improve given technologies. Capability accumulation involves the extent to which a local supplier commits to absorbing new technological capabilities based on learning from its purchasing agent(s), creating new skills, or revitalizing in new situations (Luo, 2002).

Due to the process of incremental learning as well as evolutionary process of developing locally-refined skills and routines, technological capability is a cumulative process. Technological change can be induced through both routine production and the need for critical revision (Cantwell, 2001). Indeed, the original contribution of this paper is to reconsider the GVC literature to investigate the accumulation of technological capabilities occur in GVC context. This effort explicitly hinges on the literature on technological capabilities.

The taxonomy of technological capabilities for the suppliers from low income economies in GVC contexts on the analytical framework by Bell & Pavitt (1995) and Lall (1992). The taxonomy is based on the evidence of the characteristics on the accumulation processes of technological capabilities in developing countries' suppliers in global value chains. The taxonomy of technological capabilities can be identified into two basic levels(Li, 2006).

**Basic routine capability is** defined as the capability to produce goods at given levels of efficiency and given input requirement. It may be described as technology-using skills and knowledge (Bell and Albu, 1999).

**Innovation technological capability** is the capability to change or improve products and processes. It may be described as change-generating capability or technology-changing skill (Bell and Albu, 1999).

To some extent, there are four levels of technological capabilities: the primary level (basic routine capability), and three innovative capability levels (Table 1)

Following the Lall (2001), there are three capabilities which apply to local suppliers in GVC context: (i) investment capabilities refer to the skills required before and during the investment; (ii)production capabilities include the generation and management of technical change in processes, products, and production organization; and (iii), Linkage capabilities are required due to high transaction costs in an inefficient marketing situation where the setting up of extra marking linkages usually corresponds to an efficient strategy.

Table 2 presents the taxonomy of technological capabilities for the local producers in low income economies in GVC context. It illustrates each stage in the accumulation of local producers under the support of global buyers, and lists the

activities most characteristic of each level.

**4. Conclusions and implications for further research**

Nevertheless, the GVC approach accentuates the natures of the relationships among various factors involved in the value chains, and their implications for business growth. However, recent studies have not fully clarified how global chains foster upgrading activities in low income economies at a firm-level focus. To some extent, due to the fact that the theory of GVC governance and upgrading originally stem from the case studies, they tend to fail to address the issues on firm level. For example, the existing literature will fail to answer the question and the like as follows:

• Why do firms in the same industry and cluster demonstrate starkly different approaches to brining their products to global markets; or

• Under the same governance structure, why some firms can upgrade into global value chains; some are not able to do that? What factors beyond the governance context determine this?

Therefore, this does seem to be a very fruitful area for future research. We stress two significant points here.

First, firm level surveys or questionnaires can be produced to explore the phenomenon how local producers improve their technological capability in quasi-hierarch governance structure.

Secondly, beyond the GVC governance and upgrading, a wide range of research agenda are largely under research. For example, existing literature tends of focus on a buyer or supplier perspective without considering the transaction between the two parties holistically.

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Table 1. Four level of technological capabilities of developing countries' suppliers in GVC context

| Level | Sub-levels | Description |
|---|---|---|
| Primary | Basic routine capability | With the ability to produce goods at given levels of efficiency and given input requirement |
| Innovative | Basic innovative capability | With the support of global buyers, the local suppliers have the ability to make incremental changes of process to improve quality |
| | Intermediate innovative capability | With the support of global buyers, the local suppliers have full production skill and the capability for process innovation and product design |
| | Advanced innovative capability | With the support of global buyers, the local suppliers conduct their won R&D for products and processes, and are able to develop product innovation capabilities on its own |

Source: based on Bell & Pavitt (1995).

Table 2. The accumulation of technological capabilities of suppliers in low income economies in the GVC context

| Capability Level | Investment capabilities | | Production capabilities | | Supporting capabilities |
|---|---|---|---|---|---|
| | Decision making control | Project preparation and implementation | Organization of process and production | Product centred | Developing linkages |
| Basic operative capabilities | Engaging primary contractor and payment estimation | Preparation of initial project outline; Construction of basic civil works | Routine operation of and basic maintenance; Efficiency improvement from experience in existing tasks | Replication of product specification and designs | Procurement of available inputs from existing suppliers; Sale of given products to existing and new customers |
| Basic innovative capabilities | Active monitoring and control of feasibility study, Technology choice/sourcing and project scheduling | Project feasibility study, Standard equipment procurement and simple ancillaries engineering | Improving layout, scheduling; Maintenance and minor process adaptation | Minor adaptations to market needs, and; Incremental improvement in product quality | Searching and absorbing new information for local producers |
| Intermediate innovative capabilities | Search, evaluation and selection of technology | Detailed engineering; Project scheduling and management; Commissioning | Process improvement, licensing new technology; Introducing, production organizational changes | Licensing new product technology and/ or Reverse engineering incremental new product designs | Technology transfer to local suppliers to increase efficiency, quality for local supply |
| Advanced Innovative capabilities | Developing new production systems and components; Product innovation and related R&D | Basic process design related R&D | Innovation in processes and related R&D | Design of basic characteristics for new products; Product innovation and related R&D | Collaboration in technological development with suppliers |

Source: Based on Bell & Pavitt, (1995); Lall, (2001).

| Governance \ Variable | Complexity of transactions | Ability to codify transactions | Capabilities in supply-base |
|---|---|---|---|
| Market | Low | High | High |
| Modular | High | High | High |
| Relational | High | Low | High |
| Captive | High | High | Low |
| Hierarchy | High | Low | Low |

Figure 1. Dynamics in global value chains governance

Source: Gereffi, Humphrey & Sturgeon, (2005).

# An Analysis of Pricing Strategies

# in the Process of Business Acquisition

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**Abstract**

In the process of enterprise merger, how to make transaction price much more rational has become a difficult problem theoretically and practically. This article applies the method of game theory to analyze the equilibrium price between the buyers and the sellers or just the buyers existing in enterprise merger market, and then puts forward the optimal bidding strategies in the merging process. Moreover, it also indicates that Bayesian balance lies in the competition between the buyers, while the best response of every game player is that its quotation should be half of its evaluation of the merged enterprise.

**Keywords:** Enterprise merger, Equilibrium price, Game theory, Bayesian balance

## 1. Introduction

Enterprise merger, as one kind of economic behavior, is that an enterprise acquires other enterprise's controlling rights completely or to a certain degree by means of property right transaction in order to enlarge its business scope, reinforce its economic strength, improve its overall competency and finally realize its enterprise management strategy and goal(Fred, Weston and Merger, J., 1998). This article analyzes the price bidding and demanding strategies of the merging enterprise and the merged enterprise during the merging.

In the merging process, transaction price is the core issue to the merging enterprise and its target enterprise. And as the business of enterprises, enterprise merger surely takes enterprise value as the exchange basis, but actually, it shows the irrational behaviors of the buyer-enterprise or the seller-enterprise. Against this background, this article applies game theory method to analyze the bidding and demanding strategies of the merging enterprise and the merged enterprise in order to provide instructions to determine the transaction price in enterprise merging activities.

## 2. Equilibrium price analyses during the competition between the buyers and the sellers

From a practical point of view, there mainly exist two kinds of enterprise merger, one of which is the hostile takeover, and the other is the intentional one. When an enterprise has realized the danger of the former, it will take series of measures to defend against the acquiring side. However, both the buyers and the sellers of the latter, although their returns or starting point is quite different, have the same will to merge. Furthermore, no matter what the merging mode appears, the solution to the problem is sure to be decided on both sides' determining the transaction price.

Now suppose there are 2 enterprises—the merging enterprise and the merged enterprise, who negotiate with each other mainly aiming at the transaction price, and formulate the following rule: No matter either side puts forward the proposal, it is possible for its opponent to accept or reject. If one side accepts, then the negotiation will end; otherwise, if one side put forward an improved plan, then it's the other party's turn to choose whether accept or reject. Moreover, both sides

would bid alternately till any side accepts the other's plan. For the convenience to study, we assumes as follows:

Hypothesis (hereafter abbreviated as)

**H1:** The merging enterprise (assumed as game player 1) and the merged enterprise (known as game player 2) are economically rational.

**H2:** The transaction takes the manner of purchase-merger.

**H3:** Because of the negotiating cost and interest loss of every more phase of bargaining to be continued, the returns of both sides should be discounted once, and the discounting ratio is $\beta$ (0< $\beta$ <1). Thus, any game player is surely willing to accept, if its profit in the phase when its opponent bids is more than that of its self in the next phase.

Suppose the market value of target enterprise is $V$, and then the buyer's potential evaluation of the seller is $V_{\text{buyer}}$. Moreover, in every phase, the buyer's bidding is $V_i$, while the seller's demanding price is $V_j$, $i$=1, 3, 5, $j$=2, 4, 6…Our principle is that, with the increased number of bargaining times, we could find the concluding price $P$ at last and make it as the balancing solution. And usually when the transaction is concluded, we would get $P \le V_{\text{buyer}}$, which makes the above problem to convert into a bargaining game on in an infinite phase.

First, this article introduces the idea suggested by Shaked and Sutton on solving this kind of game problem, whose gist is that the result of the third phase (if it could reach the third one) or the first phase is the same (Xie, Shiyu, 1999; Lin, Lei and Qian, Liu, 1999), then this essentially forms a game of 3-phase transaction price. Upon the above-mentioned conclusion, now further suppose there is a solution to the problem inferred by induction. Based on the former supposition, if the buyer and the seller close the deal with the same price $P$ (the bidding of the merging enterprise that should be accepted by the merged enterprise at the moment), the highest demanding $V_2$ of the merged enterprise in the second phase that could be accepted by the merging enterprise is sure to make its returns to satisfy

$$\beta(V_{\text{buyer}} - V_2) = \beta^2(V_{\text{buyer}} - P) \tag{1}$$

And while the gains of the merged enterprise is $\beta[(1-\beta)V_{\text{buyer}} + \beta P - V]$, the above equation should be

$$V_2 = (1-\beta)V_{\text{buyer}} + \beta P \tag{2}$$

Thus, the bidding of the merging enterprise makes the merged enterprise to gain $\beta[(1-\beta)V_{\text{buyer}} + \beta P - V]$, and the returns of itself should be more than $\beta^2(V_{\text{buyer}} - P)$, at this time

$$V_1 - V = \beta[(1-\beta)V_{\text{buyer}} + \beta P - V] \tag{3}$$

should be satisfied. As noted above, for a 3-phase game is equal to the former one in an infinite phase starting from the first phase, then we could get

$$P - V = \beta[(1-\beta)V_{\text{buyer}} + \beta P - V] \tag{4}$$

and

$$P = \frac{(\beta V_{\text{buyer}} + V)}{(1+\beta)} \tag{5}$$

which stands for the balanced bidding of the merging enterprise in the first phase. By now, the returns of both sides should be $[\dfrac{(V_{\text{buyer}} - V)}{(1+\beta)}, \dfrac{\beta(V_{\text{buyer}} + V)}{(1+\beta)}]$.

## 3. The bayesian balance in the competition between the buyers and the sellers

The competition between the buyer and seller mainly is mainly embodied in 2 or more than 2 merging enterprises' contending for a target enterprise, and the key to this problem is still the determination of transaction price(Zhou, Ruiling and Chen, Hongmin, 2005). And under such circumstances, the competition turns into the game between the buyers. For the convenience to study, we further make such assumptions as follows:

**H1:** There are only 2 merging enterprises called as game player1 and game player 2, and both of them have equal economic rationality.

**H2:** No foul behaviors exist in the competition.

**H3:** Only 2 game players are accepted to use linear function strategy and both of their evaluations are mutually independent and standard distributed between [0, 1].

**H4:** The value of the merged enterprise is decided, and the conspiracy between the merged enterprise and some of the buyers doesn't exist.

Symbol description:

$V_i$ stands for game player i's the evaluation of the merged enterprise, and $A_i = [0, \infty]$ stands for action space.

$b_i$ stands for the marked price of game player $i$, and $P$ is its deal price .

$u_i$ stands for the income function of game player $i$, and $\theta_i$ is the type space [0, 1].

$b_i(V_i)$ is one of the strategies of game player $i$, while both $a_i$ and $c_i$ are the coefficients of linear function.

Based on these hypotheses, problems stated above are practically non-cooperation games with incomplete information, named as static Bayesian balance (Sun, Jing and Gao, Jianweim, 2006), and at the moment we could get to know the function of game player i is

$$u_i = u_i(b_i, b_j, V_i) = \begin{cases} V_i - b_i & b_i > b_j \\ \dfrac{(V_i - b_i)}{2} & b_i = b_j \\ 0 & b_i < b_j \end{cases} \tag{6}$$

In this formula, when $i = 1$, we could get $j = 2$; when $i = 2$, $j = 1$ could be reached.

Theoretically, we have known earlier that the strategy of game player $1 — b_1(V_1)$ and that of game player $2 — b_2(V_2)$ should be the best response to each other in a Bayesian balance. Correspondingly, the intact expression should be the following: if strategies portfolio ($b_1(V_1)$, $b_2(V_2)$) is a Bayesian balance, to every type of every game player— $V_i \in [0,1]$, $b_i(V_i)$ should satisfy

$$\max[(V_i - b_i)P\{b_i > b_j\} + \frac{(V_i - b_i)P\{b_i = b_j\}}{2}]$$. And in this formula, $b_i = b_i(V_i), b_j = b_j(V_j), i, j = 1,2$

According to the above hypotheses, let $b_i(V_i) = a_i + c_i V_i$, and $a_i < 1$, $c_i \geq 0$. In order to search for the strategy portfolio to constitute Bayesian balance from strategy space, let's suppose the strategy of game player $j$ is $b_j(V_j) = a_j + c_j V_j$, then for any given $V_i$, game player $i$'s best response should satisfy:

$$\max[(V_i - b_i)P\{b_i \geq a_j + c_j V_j\} + \frac{(V_i - b_i)P\{b_i = b_j\}}{2}] \tag{7}$$

For $V_j$ is standard distributed, $b_j = b_j(V_j) = a_j + c_j V_j$ is the same. And because $P\{b_i = b_j\} = 0$, the above formula is then turned into

$$\max[(V_i - b_i)P\{b_i \geq a_j + c_j V_j\} + \frac{(V_i - b_i)P\{b_i = b_j\}}{2}] = \max[(V_i - b_i)P\{\frac{(b_i - a_j)}{c_j} > V_j\}] =$$

$$\max[\frac{(V_i - b_i)(b_i - a_j)}{c_j}] \tag{8}$$

Hereinafter, first order condition is $b_i = \dfrac{(V_i + a_j)}{2}$, that is to say, the response of game player $i$ to game player $j$'s

strategy of standing at $a_j + c_j V_j$ should be $b_i = \dfrac{(V_i + a_j)}{2}$. In addition, we should pay attention to the existing

possibility—$V_j < a_j$ because of $b_i = \dfrac{(V_i + a_j)}{2} < a_j$. Practically, game player $i$ could not win the tender, so

$b_i = \dfrac{(V_i + a_j)}{2}$ is not the best response. In brief, the best response of game player $i$ is

$$b_i(V_i) = \begin{cases} \dfrac{(V_i + a_j)}{2} & V_i \geq a_j \\ a_j & V_i < a_j \end{cases} \tag{9}$$

By mathematical analysis, in order to guarantee both sides' strategies to be strictly linear functioned, we require $a_j \leq 0$,

then at the moment the best response of game player $i$ is still

$$b_i(V_i) = \dfrac{(V_i + a_j)}{2} \tag{10}$$

However, when it is compared to $b_i(V_i) = a_i + c_i V_i$, we could get $a_i = \dfrac{a_j}{2}$ and $c_i = \dfrac{1}{2}$. By the same analysis,

when $a_i \leq 0$, we could get $a_j = \dfrac{a_i}{2}$ and $c_j = \dfrac{1}{2}$ — the best response of game player $j$. If we form equitation

simultaneously with the result noted above and that of game player $i$'s best response, then when $a_i = a_j = 0$ and

$c_i = c_j = \dfrac{1}{2}$ ($i, j = 1, 2$), we could get $b_i(V_i) = \dfrac{V_i}{2}$, which shows the best response of every game player is that its

quotation should be half of its evaluation of the merged enterprise.

## 4. Conclusions and revelation

This article applies game theory method to analyze Equilibrium Price between the buyers or between the buyer and the seller existing in enterprise merging market and then arrives at the optimal bidding strategy in the merging process. The research shows that Bayesian balance lies in the competition between the buyer and the seller, that is, every game player's best responses is that his quotation should be half of its evaluation of the merged enterprise.

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Figure 1. A game expansion model of transaction
price in an infinite phase
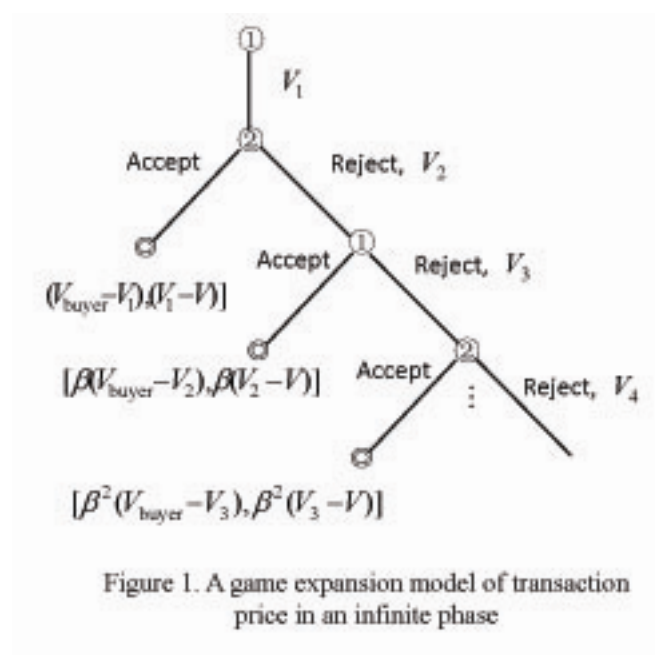
# The Differences of Sino-American Culture and Effects

# on the Motivation Pattern in Chinese Enterprises

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**Abstract**

The paper addresses the differences between American and Chinese culture. Associated with the typical American and Chinese culture, the paper further addresses the affection of the difference to the theory of motivation. At the end of this paper, it gives a model that suitable to the Chinese company.

**Keywords:** Culture difference, Motivation

## 1. Introduction

China is an big eastern country with civilized history of 5,000 years, its culture is of long standing and well established; U.S.A, of which history is only 200 years, a new big country with developed economy, its leading culture is European culture. Because of these differences in such factors as geographical environment, historical background, evolution, etc., the culture of China and the United States demonstrates enormous differences too. These differences are shown in the following three aspects mainly. And consider the difference among these three respects, if apply the traditional encouragement way in the west to China, which must be revised essentially, we have proposed a motivation models for Chinese enterprises, only for reference.

## 2. Grade idea and human rights idea

Taking Confucianism as the core traditional culture of China, we always maintain different hierarchy, senior and young in order. Mencius asserts claims: "Shun make Qie as Situ, teaches with moral principles, father and son kiss, officials have justice, couples are different, senior and young in order, friends must be of credit." ("on Teng WenGong") In the long process of feudal society, China has formed a whole set of hierarchy relationship between father and son, officials, couples, namely " father guides son, ruler guides officials husband controls wife ", no one can violate such 3 cardinal rules. The Confucianists' ethics has quite far-reaching influence on the Chinese social behavior, and make people judge things with its standards. The one who violates the principles will be considered as treason who is not accepted by people all around. The author of " Romance of the Three Kingdoms " demotes Cao Cao and praises Liu Bei, for which fact, a very important reason is that Cao Cao is not " loyal " and that Liu Bei " keeping duty ". Cao Cao takes as official in feudal times, " hold the emperor under the arm and make duke under an emperor ", can't " work for monarch with loyalty", a treasonable and treacherous official; Moreover Cao Cao is not a member of family name called Liu, but he wants to handle the Han room, which can't be accepted for Chinese whose family's idea is very strong. In view of this, Cao Cao should be flogged by the criticism.

In Chinese society, people are always restricted by their own status and role , while communicating, otherwise of impoliteness. For example, subordinate or the younger generation should greet first voluntarily while seeing authorities or the elder. For showing the respect, the younger generation often say " you " at calling elder, subordinate often calls senior authorities with post, for instance " section chief Wang " , " secretary Zhao " , etc.. While talking, the high of the position or elder is often the leading party, the other should demonstrate the humble expression of respectful attention. Often there is such kind of situation in daily life: Children see adult and greet "uncle fine", "auntie fine" voluntarily, adult praise "courteous", otherwise "bad-mannered" Most Chinese schools define "respecting teachers "as one of the rules students must obey, or, they are most likely considered as "bad thought and quality ". In addition, Chinese follow a certain rule too while choosing priority of sitting down and standing up or coming in and going out.

To some extent, this strong grade idea from Chinese culture is expressed in the Chinese language too .It is not wanton to arrange the order under a lot of situations when several words stand side by side in Chinese, generally arrange the order according to hierarchy, from main fact to subordination, from great to little ", for instance " the monarch and his

subjects , father and son , brothers , sisters , master and apprentice , being up and down , the party and the masses , soldiers and officers , men , woman ,the old and the young " ,etc..

Different from Chinese culture, U.S.A.'s culture can be flaunted with "human rights". Human right is all power people should enjoy (include personal power and other democratic power). Americans do one's best to insist that freedom is equal, think all people are born equally, and pursue freedom and power to enjoy happiness. Such an equal idea permeates through Americans' life and thinking field, their behaviors , work , amusement , language, politics reflect the equal idea invariably ,and various kinds of relations in real life are limited by this kind of idea invariably .

In Chinese enterprises, job grade often marks the grade of position, so even if the staff of Chinese enterprise is capable, one does not dare to surmount his superior's achievement yet, otherwise others will not think he shows no respect on higher authorities.

In U.S.A., for the father and son, teachers and students, people of different positions, all their power is equal legally. Because the idea of grade and identity is faint, in U.S.A. culture, people have less punctilious while mingling. When one meets other acquaintances, whether seniority in the family and status in the society, he express " hello " without exception. The generation of grandsons can call grandfather's name, children call parents' name, students can call teachers' name, too. With Americans' initial meeting, after both sides interflow names, Americans often said: ' Call me the Bills /John ' (including no family name). It's natural and cordial.

In American enterprises, there is only difference in working and functions and powers between the superior and the subordinate, and never in the position. So only concern oneself with facts and not with individuals in establishment of the incentive system, who works better, who can obtain higher remuneration, taking no consideration of position levels.

### 3. Taking care of sympathy seriously and individualism

Say as above, the ethics that Chinese generally practise is the Confucianists' ethics, and the central idea of the Confucianists' ethics is "benevolence ". What is the benevolence? Analects of Confucius Fan Chi ask people, the person says "caring about the people", namely love everybody. Since people have the responsibility of caring about the people, who should be cared first? Say again on the Analects of Confucius: "Xiaodi is the principle of behavior?" "xiaodi", is filial towards parents and to show and respects to the elder brother. It's to teach people to love one's own brothers and parents first, and then expand to others' brothers and parents, until everybody. The love and affections are close and related, caring about love must caring about affections. Therefore, the Confucian culture taking "benevolence" as the core, namely China's traditional culture, must pay attention to the emotions between people. In other words, Chinese culture demonstrates one side that cares about hierarchy, it represents the other side that takes care sympathy seriously, of which the two supplement each other, bring out the best in each other, form distinctive Chinese traditional culture.

Say "benevolence" needs to explain "xiaodi " at first , this is easy to understand. People who do not love the brothers of parents, how could everybody be loved? So, the development of the benevolence one must begin at home. The fact is exactly like this too. Chinese culture serious one side of feeling, display each other treatment among kinfolks and is it love to imprison at first, so-called father kind sub filial piety, friend younger brother respectful brother have, quite harmonious whole family have. In the traditional Chinese family, treat each other with respect, live a long life together exquisitely between couple; Mostly help each other and like each other among siblings; At bringing up children, parents try their best to satisfy their children' need, seldom consider how much oneself pays; Get parents to be getting on in years, lose work or after the viability, children is it support, wait upon the old man to want, enable it to spend remaining years in comfort. Live in this kind of family which is full of kindred, even if the material life is poor, it is happy and happy and harmonious too. No wonder mention this wording of "family ", Chinese drifting about outside, a true men, unavoidable thoughts surging in the mind too.

To the person beyond kinfolks, Chinese have always maintained in order to already push people, see things as one would if he were in someone else's place, feel for others; Maintaining old I am old and people are old, young I am young and the person one is young; Advocate behaving exactly in the same way as one thinks one ought to, by treating people sincerely. When others need help, such behaviors as "hesitating to do what is right", " helping generously with money ", etc. were people's generally acknowledged benefaction, magnanimous act undertaken for the public good. Generally speaking, each Chinese has several friends who sing the same song, can rely on. Often help each other between the good friends, keep no secrets from each other. Such intimate friendship duration is generally relatively long, even can last all one's life.

So in Chinese enterprises, it is harmonious to pay attention to the colony, it is harmonic to organize. In this way, encouraging colony's performance is a very large breach.

U.S.A. has quite different culture. U.S.A.'s social human feeling is cold, individualism overflows, and long-standing. Cross-cultural exchange scholar Larry A Sam and Richard E Potter says: "Individual is the most lofty in western culture, individualism is primary and definite values. This kind of values may be everything leading in U.S.A. "Among English written language," I " (I) must be capitalized on any occasion, while, others not. From this side, we can see that " I " is

more important than " we " , " you " , " you " , " he (she ) ".

Americans attach great importance to the individual right and freedom. In the human communication, Americans often cause the deterioration of the interpersonal relationships because emphasize oneself power and freedom excessively. Have read such news on the newspaper: There are American married couples correctly, in case of wife's unwilling sexual life in one day, the husband has sexual intercourse by force, the wife thinks one's own personal power is encroached on, then gone to the court to indict the husband and commit the crime of raping. Therefore, Americans' attention to the individual right. We do not go to judge the right and wrong tentatively, but such and such conjugal relation lets people tremble with fear unavoidably.

Cold and detached emotions have by father and son, couple, have any affection that can be spoken between men while being other. Extreme individualism has determined "the relation between people and human world is just terrible with the relation of the public affair type in U.S.A. When you are favorable to others, it is a guest on a mat that you may be invited, but when you do not contribute others' interests at all, others treat you coldly naturally. "Perhaps this is one of the reasons U.S.A.'s social crime rate to remain high and the neurasthenia and disease are of common occurrence.

In brief, pay attention to the personal actual effect in American enterprises, but does not mind the relation is harmonious, in fact it is for achieving personal purpose too that the relation is harmonious. So the encouragement ways of American enterprises are generally subject to personal result achievement.

## 4. Ethics and legal system

As everyone knows, the family occupies the centre position in Chinese society. The family is not only a basic public organization; but also the models of all social organizations. In the past, emperor was called "the son of Heaven". Local officers were called "parental officers". Good friends become sworn brothers or sisters. Nowadays, it is often said that the people of all ethnic groups live happily in the big family of China. Even in a popular song, it is sung that our large China, a large family. Therefore, social organization and social relationships of China regard family as the mode generally. And the ethics of Chinese family can be pushed and spread out to the whole society.

According to the Confucian ethics, people should be filial towards parents, love their brothers and sisters in the family, which is the principles to deal with relationship in the family. People all pay great attention to the relationship between parents and children in the traditional Chinese families. It means people should acts scrupulously abide by his or her status in the family. Unless everyone acts its role that should act, everybody could live together harmony, the family could be steady and prosperous. To spread out the ethics of family relationship to the society refers to extend the intimate attitude toward family members to the faithful spirit of order toward other members of the society. Simply say, we should be loyal to the king or superiors as be filial towards parents, respect colleagues and friends as brothers or sisters.

The Confucian advocates comity, loyalty and mercy. The most remarkable meaning of comity is that people respect each other, which purpose is to make the relationships harmonious. Confucius said "Benevolence is asking oneself to comply with legislation", which emphasizes the importance of the comity. The comity represents respect which is the inherent spirit of comity. Comity and respect have magical effect in maintaining and improving the relationships. Loyalty includes being loyal toward monarch, but means more. The original meaning of loyalty is devotement which refers to taking on one's own responsibility. Everybody has the responsibility to help others according to one's own kindheartedness. Therefore, loyalty gets people to devote themselves to other people. One has loyal responsibility for others, also has the responsibility of mercy. It is said that "Person full of benevolence, would improve others for improving oneself, and would enrich others for enrich oneself." in Analects. This is mercy, which advises people to treat others like oneself. Don't give others the thing you don't need. Mercy is the basic principle. If everybody obeys the principle, everyone can live peacefully.

According to the Confucian ethics, everyone has his proper position, everybody should keep courtly and merciful and should not act foolishly. This is the important insurance the operation of traditional Chinese society and the harmoniousness of the relationships.

In fact, China is a people control system the society, and Chinese enterprises are of people control system type. For a long time, the prosperity of enterprises depends on a certain leader's wisdom, not depend on enterprise system. When the enterprise system conflicts with leadership style, people will choice the latter one without hesitation.

Different from Chinese traditional culture, the legal system is valued in American society. There are various kinds of laws in America, numberless as the sand, which involves politics, economic, education, marriage, public welfare and other aspects of daily life. With the respect of law, most government officials are all or once practitioners. Legal spirit extends its reach gradually to the bottom stratum of society through the managerial bulwark. It is deeply convinced that the methods could be found in the legal clauses to solve all the problems. Then, the father and son will go to the court once they become estranged, couples will go to the court once they dispute the property, even the neighbors will appeal to the court if the dog enters others' courtyard by mistake.

However, the human nature is very complicated. Sometimes, the law is useless. It can be enough proved by the phenomena that the drugs are overflow in America recently, crime rates rise, divorce rate remains high, political scandals never stop and so on. Another example, no matter how detailed the law stipulates about the right and incumbency, it is of no help to improve couples' sentiment and stabilize marriage relation when they pursue the freedom and happiness by themselves, do not consider about each others.

Under the guidance of individualism values, everyone in American social vies with each other and eagerly to succeed. In order to achieve this target, some people disregard the law, rush into danger. Moreover, carnalism and mammonism prevail in American society. Money talks may make the law twiddled with by some rich people. Though it values the legal system in America, which is still not an ideal kingdom.

As a result of the prevalence of this value concept, money motivating seems more effective. American enterprises often motivate employees to achieve the goals of the organization by money.

**5. Proposition of the motivation pattern of aim at Chinese enterprise**

First of all, considering that Chinese traditional social estate system is deep-rooted, the system of post subsidy should be implemented to motivate employees. The subsidy is different according to the post.

Then to provide Seniority subsidy monthly according to the length they worked for the enterprise, which meet the needs of Chinese culture that aim at people not business.

Chinese pay great attention to harmoniousness and do not like to destroy relationship of collectivity. Therefore, the motivator aim at individual in west is not applicable in china any more. Chinese enterprises should consider the collective motivation. It is undoubted that some collective encouragement does not need to be apportioned. For example the company organized the collective to travel. However, there is a problem that some divisible collective encouragement needs to be distributed to individual. To distributive justice will make everybody satisfied and the collective more harmonious; otherwise, it will affect collective relationship.

How to distributive justice?

Here, we will involve the third difference of the culture that Chinese adopt people system while American value legal system. We can vote to elect several supervisors who are approved. Let the supervisors to contrive several schemes anonymously by Delphi analysis, then discuss and select the best allocative decision.

Of course, certain enterprises will have concrete motivation pattern. This is the basic frames.

According to Herzberg's Two-Factors Theory, hygiene factors of Chinese enterprises should refer to the subsidy by particular post based on social hierarchy and the collective encouragement, in order to form a harmonious environment that employees help each other and improve themselves. It should work definitely.

Indivisible collective encouragement will motivate employees directly, and then distribute the divisible reward to individual in the collective according to Delphi analysis. This method meets the material needs and self-fulfillment, self-esteem needs.

As the Figure 1, compared Chinese culture with American, we do not want to belittle a certain culture. In fact, each culture has strong and weak points. For example, Chinese value ethics and emphasize commiseration, which is the lubricant to keep good relationships. However, growing up in this kind of culture, Chinese make decision aim at people not business. On the contrast, Americans emphasize legal system, and will not be bothered by the human feelings when make decisions. In addition, although the individualism prevail in the American society has its negative side, it benefits for independence, creativity and bringing forth the new talents. It is obvious that the strong point of American culture is exactly a weakness of China. Chinese should learn from American the strong point. I advocate this motivation pattern should be the leading pattern in china, and encouragement emphasizes the individual achievement also can be used to play a assistant role under the guidance of Chinese traditional culture. The motivation pattern in Chinese enterprise which leans to Chinese culture is easier to be accepted by employees. Whether it will get actual effect in companies, and how to execute in certain enterprise remain to study!

**Acknowledgement**

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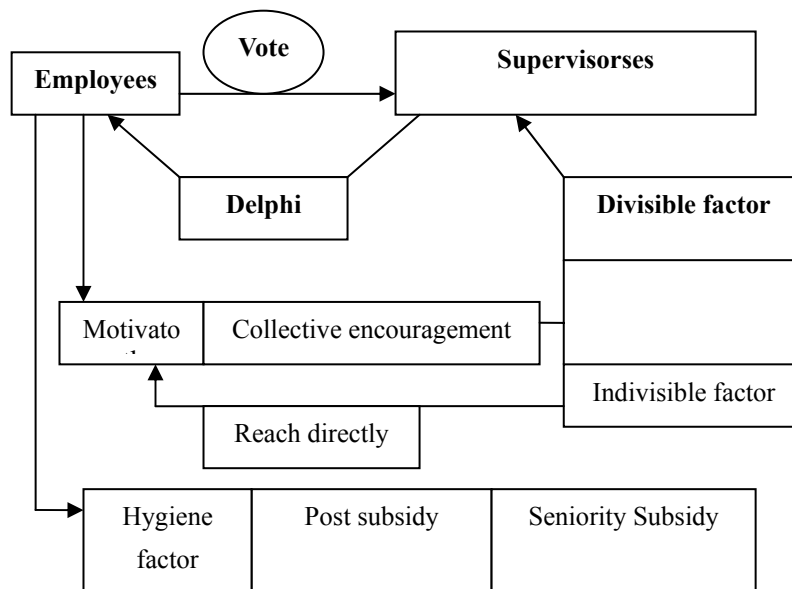


Figure 1. Liu Shengmin model

# A Critical Review of Three Theoretical Approaches

# on Knowledge Transfer in Cooperative Alliances

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**Abstract**

Knowledge transfer has been acknowledged as the conveyance of knowledge between actors in an exchange relationship. Inter-firm knowledge transfer considerations are particularly applicable to the viability of cooperative alliances. This paper attempts to identify and demonstrate the limitations and gaps in the existing theoretical approaches when it comes to understanding the phenomena of inter-organizational knowledge transfer relying on alliances in the competitive and changing environment.

**Keywords:** Knowledge transfer, Cooperative alliances, Transaction cost economics (TCE), Resource-based theory (RBT), Knowledge-based view (KBV)

## 1. Emergence of Inter-organizational cooperation

Over the past two decades, although inter-organizational cooperation is often described as being inherently fragile and unstable in nature with high failure rates (Geringer & Hebert, 1991; Inkpen & Beamish, 1997; Albers, 2005), inter-organizational cooperation have increased every year. The benefits of inter-organizational cooperation have been recognized worldwide, and inter-organizational cooperation has been utilized substantially in nearly all industry sectors (Pavlovich & Akoorie, 2003; Hyder & Abraha, 2003).

Inter-organizational cooperation can be regarded as the important component of corporate strategy undertaken by involved firms in an intentional facilitating manner according to some definite strategic goals (Gulati, 1998; Ariño & Reuer, 2004; Albers, 2005). It normally involves two or more parties engaging in the development and operation of a new business entity both in the domestic and international markets (Hagedoorn & Schakenraad, 1994; Bleeke & Ernst, 1995).

Inter-organizational cooperation can encompass several institutionalized forms that range from just short of mergers and

acquisitions (when one firm absorbs most of the stock of another) to informal arrangements to work together (Harrigan, 1986), such as alliances, license co-production agreements, value chain partnerships etc. (Hyder & Abraha, 2003), as shown in Figure 1.

Various forms of inter-organizational cooperation modes depict the important changing landscape accruing in organizational management practices - no longer are organizations operating independently, but rather there is flexible interdependency and co-development among various types of firms (Pavlovich & Akoorie, 2003; Child & Faulkner, 1998). These collaborative alliances phenomena illustrate the changing landscape of organizational management based upon partnerships and interdependence. In fact, if the disadvantages of inter-organizational cooperation can be reduced to a certain degree, companies could seek the mechanism of cooperation to acquire each other's resources and skills that they cannot develop with its own efforts (Albers, 2005).

## 2. Value of Knowledge-Driven Inter-organizational Cooperation

Researchers seeking to explain the alliance trend have argued that inter-organizational cooperation provides a platform for maximizing long-term profitability – either by increasing sales or decreasing costs, or both. Other common motives include capturing increased economies of scale (Newburry & Zeira, 1997), being cost-effective and efficient in the height of the globalization of markets (Datta, 1988; Harrigan, 1985, 1986), local market channel access (Harbison, 1996; Gomes-Casseres, 1989). Researchers particularly note access to resources, core competencies, innovative skills, and country-specific knowledge as the primary goals for business firms (Kogut, 1988; Ireland, Hitt, Vaidyanath, 2002; Eunni, Kasuganti & Kos, 2006; Inkpen, 2002). In many industries, increasingly rapid technological update and competition results in alliances intending to access knowledge, skills, and resources beyond firm boundaries. Companies that are capital-rich but knowledge resource-poor are attracted to collaborative alliance ventures (Inkpen, 2002; Schuler & Tarique, 2006).

Albers (2005) explains the resource access motive in alliance formation as the advantage of two firms joining their complementary resources. In doing so, they achieve time advantages in comparison to the alternative of developing or acquiring the needed resources alone. Pavlovich and Akoorie (2003) also emphasize the 'partnering' of firms, from various industrial sectors, as developing rich and fine-grained knowledge exchanges to build and innovating organizations. These organizations can flourish if they can be managed effectively and efficiently. Table 1 provides three alternative ways of accessing knowledge resources, which is either through the market, internal development or through alliance formation. With these in mind, taking business in inter-organizational cooperative arrangements has thus enabled organizations to consider every potential opportunity to promote their products or services at some level (Hill, 2005). This is not only important for organizational growth, but is essential to gain an advantage and stay a step ahead of the opposition - a key strategy for modern corporations.

The above comments provide the theoretical perspectives on the benefits for organizations to enter into cooperative arrangements (Hyder & Abraha, 2003). With regard to the explanations of the phenomena of resource access based on organizational cooperation, three schools of thought are discussed in the following sections. These are *Transaction Cost Economics* (TCE), *Resource-Based Theory* (RBT) and *Knowledge-Based Theory* (KBT).

## 3. Three theoretical approaches

### 3.1 Transaction Cost Economics (TCE)

Organizational theorists have correctly argued that management lies at the intersection of variety of disciplines, including economics, sociology, and psychology. Transaction cost economics theory (TCE) is thought to be most useful for integrating the economic implication of organizational behavior into a strategic analysis of the firm (Kogut, 1988; Parkhe, 1993).

TCE analysis is oriented specifically towards the minimization of the costs of the transactions among various assets (Williamson, 1975, 1985; Zajac & Olsen, 1993; Tallman, 2005). Transaction costs include all the expenses and fees when preparing and implementing contracts and agreements, dealing with incurred legal claims about the terms and conditions, stabilizing the working relationship and expanding the investment channels, etc. (Kogut, 1988). The transaction cost approach suggests that firms will establish alliances when the cost incurred is perceived to be lower than that involved in full integration of the given activity within the existing corporate hierarchy (Hennart, 1991).

**Benefits of TCE -** TCE can effectively define the various organizational relationships, boundary structures and activities (Pearce, 1997). According to the TCE view, any governance mechanism is formed because this mechanism is an efficient and not expensive means to govern the particular exchange. An alliance is attractive when it economizes on governance costs in a particular transaction (Tallman, 2005). Kogut (1988) analyzed the motivation of a firm's knowledge transfer behavior via the alliance from a transaction cost perspective. Firms will engage in alliances only if inter-organizational knowledge transfers are more efficient than market means. The condition most likely to foster alliance learning behavior is the environmental uncertainties that would affect and monitor a firm's market activities. In order to avoid this uncertainty, two or more collaborative partners are put in a mutual hostage position through joint

commitment of resources/knowledge. This mutual hostage position functions as a superior mechanism resulting in the sharing of technologies, achieving alignment of incentives and then guaranteeing performance through agreement on the division of profits or costs.

According to the principle proposed by Williamson (1975; 1985), if there is a high frequency of interaction and a great deal of asset specificity, then vertical integration will occur. Therefore, TCE is useful for explaining the movement toward vertical integration (Alter & Hage, 1992). TCE contributes to our understanding of knowledge transfer in alliances. It considers the conceptual significance of knowledge transfer, identifies partner firms' resource provisions and provides a greater understanding of cost-benefit comparisons under this unique form of organizational cooperation (Yan, 2000). Some researchers point out, when dealing with the cross-border business activities, it is rational to regard an alliance arrangement as an alternative means to extend the current hierarchical structures, to minimize coordination expenses, and to improve the scale and scope of knowledge exchange and communication frequencies (e.g., Hennart, 1988, 1989; Kogut & Zander, 1992, 1993). TCE especially clarifies the tacit knowledge transfer activities and equity assets' investment through alliances. Based on his empirical research findings, Killing (1983) verifies that because of the intensive personnel interactions, such as meetings between the involved participants, the positive effects of tacit knowledge transfer can be amplified. Participants take an more active approach to conduct the business operations.

**Limitations of TCE -** However, various researchers point out that there are grave limitations and weaknesses in the transaction cost approach in explaining alliance learning behavior (Alter & Hage, 1992; Kogut, 1988). Transaction cost theory has been criticized in that it emphasizes the importance of transaction behavior only, while ignoring other relevant opportunities and advantages, such as the integrated competitive abilities and value creation brought about by this particular inter-organizational cooperative form (Yan, 2000). In another major criticism of transaction cost analysis, Kogut (1988) argues that a transaction explanation of alliances learning is driven by consideration of cost-minimization, but, actually, the decision to engage in the alliance knowledge transfer may represent a more costly, though ultimately more profitable, alternative.

A more fundamental limitation of the transaction cost approach is that it makes assumptions about the nature of human beings and organizations that have been criticized as being restrictive and culturally bound (Alter & Hage, 1992; Doz & Prahalad, 1991). Transaction cost theory assumes that there exists an anti-trust tendency in the nature of human beings and organizations and that people always want to maximize profits in all business activities. Consequently, where there are small numbers of players and dependency between them, there is opportunism. While this assumption is valid in analyzing specific types of organizational behavior in the United States context, evidence reveals differences across societies, particularly between the societies in East Asia and those of the West (Boisot & Child, 1988). It is argued that there is a movement in organizational behavior toward greater trust and dependency – which include all levels of inter-organizational collaboration – and away from a maximization of profits, even when only small numbers are involved (Alter & Hage, 1992; Doz & Prahalad, 1991).

*3.2 Resource-Based Theory (RBT)*

RBT is an alternative to transaction cost economics for explaining firm integration (Kogut & Zander, 1993). The premise is that firms forgo arm's-length arrangements (e.g., licensing) and pursue joint equity ventures and wholly-owned subsidiaries not necessarily to reduce transaction costs, but because higher levels of integration provide a more effective means of transferring know-how that is tacit, difficult to imitate, and likely to lead to above-normal returns (Kogut & Zander, 1993). RBT suggests that firm's resources and capabilities influence the growth and performance of the firm (Barney & Clark, 2007). The firm is defined as a set of productive resources and administrative organizations (Penrose, 1959). The primary concern of RBT when the theory was first introduced was which characteristics could generate sustained competitive advantages. The question is why firms exhibit varying performance within the same industry (McGunagle, 2007).

RBT posits that the resources, assets, and capabilities can be combinative and cumulative in nature (Barney & Clark, 2007). Each bundle of strategic and complementary resources has a particular rent-generating potential that changes with resource variations and is highly dependent on management capabilities (Tallman, 2005). The basic premises of the RBT are that firms are differently equipped with more or less strategically relevant resources and these resources are not easily transferable across firms.

Obviously, the essential notion of the RBT is that all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm enable the firm to implement strategies that improve its efficiency and effectiveness (Barney & Clark, 2007). A firm's resources are called *strategic resources* if they become the source of sustained competitive advantage (SCA) (Albers, 2005), and SCA will exist if efforts to duplicate this advantage by competitors have been terminated. As Barney (1991, p. 105) argues, to ensure SCA, "four attributes of the firm's resources are inevitable, i.e. *valuable; rare; imperfectly imitable; and substitutability*".

Resources are considered as "*valuable* for the firm if they improve the firm's effectiveness and efficiency" (Barney, 1991, p. 106), that is to say, the resources contribute to reduced costs or increased revenues. Resources are *rare* if no or

only a small number of potential and present competitors possess these same resources as well. If a large number of firms had control over the same valuable resource, all of these firms have the opportunity to exploit this resource, therefore no single firm has an advantage over the others. That is to say, a valuable but common resource can allow a firm to survive but it will not post an outstanding performance vis-à-vis its competitors (Barney, 1991). Resources are considered as *imperfectly imitable*, if firms can obtain them at significant additional costs. The last attribute, *substitutability*, is closely linked to the *imperfectly imitable* attribute (Albers, 2005). Obviously, if a resource which is valuable, rare, and imperfectly imitable but there is an appropriate substitute, the competitive advantage would be undermined.

In summary, according to the resource-based view, a firm that possesses and succeed in exploiting its resources with the characteristics discussed earlier can maintain a sustainable competitive advantage and perform at a higher level than the industry average (Barney & Clark, 2007). A firm can create a competitive advantage when it is implementing a value-creating strategy which is not simultaneously being implemented by a large number of firms. Various factors, such as a firm's history, casual ambiguity, and interconnectedness, may increase the inimitability of resources. Firm's resources that do not have strategically equivalent resources are non-substitutable resources. A firm may gain sustained competitive advantages when other firms may not obtain the same competitive advantage using different resources (McGunagle, 2007). The model of RBT is illustrated in Figure 2.

The applicability of the resource-based view on inter-firm knowledge transfer in cooperative alliances is commonly acknowledged although it is still in its infancy (Das & Teng, 2000). Basically, two rationales for cooperation can be identified from a RBV perspective. First, a more transparent motive can be labeled as resource access. A firm should cooperate if cooperation provides access to strategic resources in a shorter time and/or at lower costs compared to developing the resources alone (Albers, 2005). The second motive can be labeled as the retaining of its own resources (Das & Teng, 2000). This motive is relevant if strategic resources exist that are currently not employed by the firm. Through a resource-based perspective, the underlying argument is to attain sustained competitive advantage (SCA) since the relevant external and internal resources and assets are heterogeneous for firms (Hyder & Abraha, 2003).

With regard to the empirically observed motives mentioned above, the RBT clearly helps to explain all components of the resource access motive and economies of scale. Clearly, the combination of specific resources could reduce product development phases and underscore the significance of the resource access motive (Albers, 2005). RBT also focuses on organizational learning (McGunagle, 2007). The renewal and development of resource-based advantages through learning is essential (Kogut & Zander, 1992). When a firm can learn from its partners, it may also contribute to the firm's competitive advantage. The intensity and diversity of learning from local partners facilitates local knowledge acquisition and strengthen firm performance in host countries.

The RBT asserts that entries are not only 'pushed' by firm-specific advantages possessed by the MNC, but also 'pulled' by the resources and capabilities of the target firm abroad, which may help the investing MNC develop new advantages (McGunagle, 2007). In the strategic management literature, some researchers further extend the resource-based view (RBV) first identified by Penrose in 1959 and clarify the knowledge-based view (KBV).

*3.3 Knowledge-Based View (KBV)*

Knowledge creation rather than imitation is a difficult task and quite expensive to do. The central subject of KBV, which examines how to effectively and efficiently conduct knowledge management, is thus now increasingly attracting managers and researchers worldwide (Grant, 2002). The KBV argues that knowledge is a firm's most important and primary resource (Grant, 2002; McEvily & Chakravarthy, 2002). Researchers adopting the KBV perspective highlight that the firm's future growth is dependent on the productive integration of knowledge resources and derivative decision-making capabilities (Spender, 1996). A firm's competitive advantage comes from the coordination and combination of different knowledge resources at the firm level rather than the individual level through business activities (Spender, 1996). It is knowledge (especially the complex, tacit and heterogeneous knowledge which is hard to imitate) rather than raw materials that provide the driving forces for the alliances' competitiveness and performance (Barney, 1991).

Therefore, companies can be seen as systems of social knowledge inputs (Kogut & Zander, 1993, p. 627; Grant, 2002). Companies are "required to integrate the specialized and idiosyncratic knowledge, thus to constitute the coordination for generating advantage, creating returns" (Demsetz, 1991, p. 172), and developing relevant organizational abilities (Knight & Cavusgil, 2004). In most situations, there exists mutual reinforcing relationship between knowledge and capabilities. This means that companies acquiring knowledge can improve their organizational capabilities. Meanwhile, the organizational capabilities can enable companies to create new knowledge. As stated by Tallman and Fladmoe-Linquist (2002), these movements potentially lead to a virtuous cycle.

A knowledge-based perspective addresses the resources and capabilities of the alliance and, in particular, the transfer of critical know-how from the parents to the alliance (Steensma & Lyles, 2000). At the core of the KBV perspective is that an organization's idiosyncratic know-how and its ability to replicate and exploit knowledge are fundamentally

responsible for organizational success (Barney, 1991; Kogut, 1988). The strategic potential of knowledge, however, depends on certain characteristics of that knowledge. It must be simultaneously valuable, difficult to imitate, and limited in prevalence among the competitors in order to earn the organization above-normal returns (Barney, 1991; Barney & Clark, 2007).

According to the knowledge-based theory, strategic alliances are used to access other firm's resources and for knowledge enhancement in certain critical functional areas, as the required knowledge cannot be developed through its own ability (Madhok, 1996). The premise is that firms forgo arm's-length arrangements (e.g., licensing) and pursue joint equity ventures and wholly-owned subsidiaries not necessarily to reduce transaction costs, but because higher levels of integration provide a more effective means of transferring know-how that is tacit, difficult to imitate, and likely to lead to above-normal returns (Kogut & Zander, 1993). Knowledge transfer considerations are particularly applicable to the viability of alliances. The relatively interdependent relationship between the partner firms enables more face-to-face interaction and closer working relationships than non-equity arrangements and contracts. The shared equity arrangements are believed to be effective vehicles for transferring tacit know-how (Mowery, Oxley & Silverman, 1996). Building on the knowledge-based approach, while alliances sometimes bring together partners making similar contributions, e.g. sharing the risks of assets' investment, it seems they are more frequently contribute and integrate complementary inputs and attributes. Hence, a knowledge-based perspective addresses the resources and capabilities of the alliance and, in particular, the transfer of critical know-how in the alliance (Steensma & Lyles, 2000). The knowledge-based perspective is thus an alternative to resource-based view for explaining firm integration. Following on Ireland, Hitt and Vaidyanath's (2002) classification, this paper uses the term 'knowledge' referring to those skills, capabilities, processes which could be critical to enhancing organizational competitiveness.

*3.4 Theoretical critique*

There are many theoretical perspectives that are used to explain various aspects of inter-firm knowledge transfer phenomena. Each makes a singular contribution to our understanding, though a generally accepted and unifying theory is still largely absent (Parkhe, 1993; Child & Faulkner, 1998). Specific contributions include the identification of antecedent conditions that provide a strategic rational for entering alliances, the anticipation of specific returns, and the selection of a governance structure. Given particular affinities with either economics or organization theory, they exhibit distinct features. Although a unified theory is not yet available, "it is possible to offer a systematic overview of the main perspectives which contribute to our understanding of the research topic and to draw some comparisons between them" (Child & Faulkner, 1998, p. 17). Indeed, a review and comparison of the most common theoretical frameworks may illustrate this.

Transaction cost theory can be regarded as the predominant theory underlying research on inter-organizational knowledge transfer (Das & Teng, 2000), which provides a fundamentally different explanations for knowledge transfer compared to the RBT (Albers, 2005). While the RBT focuses on the firm as a whole and examining the environmental implications deriving recommendations for its strategy formulation, transaction cost theory focuses on the individual transaction (Williamson, 1996), not the firm as a predefined organization. A transaction is thereby defined basically as an economic exchange based on a contract (Williamson, 1975, 1996). The major strength of the transaction cost theory lies with a firm's capacity to achieve efficiency by having hierarchical control; however, control can also be a source of weakness since it can become a hindrance to the other partner who may avail itself opportunistically of the weaknesses inherent in the control structure (Hyder & Abraha, 2003). The assumptions underlying transaction cost theory also emphasize the importance of cost minimization and efficiency rather than issues related to profit maximization and seek to identify and exploit competitive advantages for the organizations vis-à-vis its competitors (Albers, 2005).

The resource-based theory (RBT) and knowledge-based view emphasizes the importance of unique competencies or capabilities (such as patents, knowledge, technologies, brands, or processes), which when leveraged, can provide firms with a sustainable competitive advantage and suggest that firms form alliances to exchange complementary knowledge (Li & Shenkar, 1996).

RBT also suggests that alliances differences result from imperfect processes of learning and knowledge accumulation (Grant, 2002; Barney, 1991; Barney & Clark, 2007). Both the resource-based view (RBV) and knowledge-based view (KBV) consider firms as resources (knowledge) repositories, and concentrate on how these resources (knowledge) can be organized to attain competitive advantage for the collaborating firms (Faulkner & De Rond, 2000).

There are several advantages to these approaches. First, they seek to develop competitive advantage for the collaborating firms. Second, they try to maximize long-run profits through using and developing firm resources (knowledge) (Tsang, 1998). Finally, they create opportunities for learning of knowledge by partners (Hyder & Abraha, 2003). Some researchers compare the differences between the resource-based view and transaction cost approach on strategic alliance formation, and have come to the following contrasting conclusions (Eisenhardt & Schoonhoven, 1996):

1)  Strategic and social factors are more important than transaction costs;

2)  Characteristics of the firm (e.g. strategy, top management) outweigh transaction details; and

3)  A theoretical logic of needs and opportunities overshadows efficiency issues.

## 4. Concluding remarks

In sum, theoretical explanations go some way towards explaining the increased use of the alliance mode, which means that a company can be involved in cooperative arrangements in different market areas and with different partners at the same time, bringing different strengths to each partnership as they are needed, such as knowledge of the market in a particular region, or the capital needed for an important investment. In some countries, alliances are the only acceptable and possible form with local partner/s; the firm could reduce liabilities of foreignness and obtain insights about the local environment, thus increasing the likelihood of success (Li & Shenkar, 1996). Pavlovich and Akoorie (2003) point out that different knowledge is owned by different partners and that the alliance phenomenon is not entirely unexpected given that knowledge could not be obtained by other means. Therefore, learning expectations and goals exist even in alliances that were formed for strategic, operational or financial motivations, and this alliance knowledge transfer phenomenon particularly occurs in knowledge intensive or high-tech industries.

Each of the principal theories reviewed in the above sections contributes in some way to explaining and justifying strategies of cooperation and knowledge transfer in fiercely competitive environments (Faulkner & De Rond, 2000). None of these explanations should be seen as being superior to another, and it cannot be assumed that knowledge transfer in alliances is always prompted by single aim. In fact, it is helpful if we view these explanations as being complementary rather than contradictory.

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Table 1. Ways of transferring knowledge: advantages and disadvantages

| Knowledge Development Within company | Alliances as Learning Instrument | Purchase of Relevant Knowledge in the Market |
| --- | --- | --- |
| **Advantages** | | |
| Control over Knowledge | Emergence of New Knowledge | Purchased based on Goods |
| Lead over Competitors | Implicit Knowledge Transfer | No dependence on Facilities |
| | Building up Problem-Solving Potential | |
| **Disadvantages** | | |
| Cost-intensive | Danger of Knowledge Leakage | Cost-intensive |
| Time-consuming | Knowledge Transfer Barriers must be deleted | Limited Availability of Relevant Knowledge |
| Few Incentives | | Implicit Knowledge Transfer is Difficult |

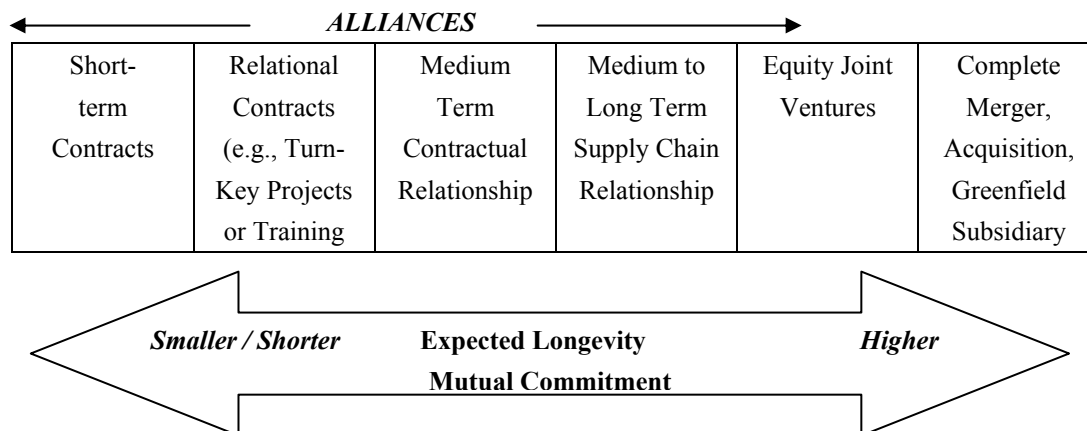Source: Adapted from Buchel et al. (1998).



Figure 1. A Spectrum of Inter-Organizational Cooperative Arrangements

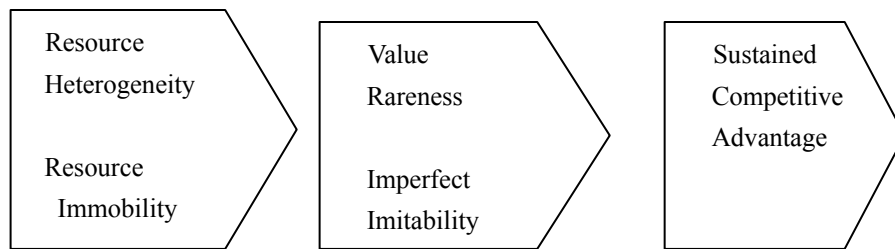Source: Adapted from Contractor & Lorange (2002).

Figure 2. Resource-based Theory (RBT) Model of SCA

Source: Barney & Clark (2007, p. 69).

# The Effect of Fiscal Variables on Economic Growth

# in Asian Economies: a Dynamic Panel Data Analysis

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**Abstract**

This paper investigates the effect of relationship between fiscal variables and economic growth in Asian economies using a generalized method of moments (GMM) method as a dynamic panel data analysis over the 1985-2001 periods. These data contain a number of time invariant and time varying variables, where the time varying variables are averaged over four year It examines two different channels through which fiscal policy can affect long run economic growth in Asia. The first channel is when components and aggregate government expenditure affects the real per capita GDP and the second channel is when the components and aggregate of other fiscal variables affects the real per capita GDP. The dynamic panel data result especially GMM-SYS establishes a long run relationship between fiscal policy and economic growth. We find positive and statistically significant impact of health and education expenditure, aggregate of government expenditure and aggregate of other fiscal variables on real per capita GDP. Furthermore, we find that the defence expenditure, distortionary taxation and budget balance are significantly and negatively related to real per capita GDP.

**Keywords:** Economic growth, Fiscal variables, OLS, Within group, GMM-DIFF, GMM-SYS

## 1. Introduction

Fiscal policies have a benign role for economic growth in the Asian region, namely to provide a stable macro environment for investment. The changed environment of liquidity constraints on external borrowing and slowdown in output growth has led to new attention being directed towards the role and contribution of fiscal policies in reviving growth in the region (Gangopadhyay and Chatterji, 2005). In the debate on economic policy, fiscal policy is predominantly viewed as an instrument to mitigate short-run fluctuations of output and employment. By a varying government spending or taxation, fiscal policy aims at altering aggregate demand in order to move the economy closer to potential output.

Fiscal policy was neither a cause of the crisis nor a critical determinant of economic growth. Nevertheless, its role in both the pre-crisis and post-crisis period in Asian countries has been seen as crucial, primarily in terms of its contribution to economic growth. From the view of the perspective of contemporary debate in the pre-crisis decade,

policy concerns focused on the perceived overheating of Asian economies rather than concerns with fiscal and external sustainability.

There are large differences among the Asian countries in their levels of living and other circumstances, as well as the policies that they have pursued. Larger government size is likely to be an obstacle to efficiency and economic growth because the taxes necessary to support government expenditures distort incentives to work and to invest, absorb funds that otherwise would have been used by the private sector in profitable investment opportunities, generally reduce efficient resource allocation, and hence reduce the level of output. In addition, government operations are often carried out inefficiently, and the regulatory process imposes excessive burdens and costs on the economic system. Thus, countries with greater government expenditure as a proportion of output should experience lower economic growth. These arguments, together with the debt crises experienced have led many countries to start a mass deregulation of market and privatization of public enterprises. Based on the above argument, and as we mentioned earlier, Keynesian economics predicts government expenditure should lead to economic growth.

When looking at the growth performance in the Asian countries in recent decades, two observations are noteworthy. First, growth has declined and become stagnant significantly since 1985. Secondly, government expenditure is not inhibits the full exploitation of the growth potential of Asian economies. There is a broad consensus that these developments in fiscal policies contribute to the relatively weak growth performance in the Asian countries.

Fiscal positions vary significantly across countries and sub regions. Significant fiscal deficit and accumulation of public debt are relatively new phenomena for most Asian economies. However, expenditure growth outpaced revenue growth in many Asian economies, leading to persistent budget deficits and high indebtedness. Weak fiscal positions have left little room for further fiscal expansion in most Asian economies when faced by economic slowdown. Moreover, measuring fiscal policy has always posed a difficult challenge.

The objective of this study is to examine the effect of fiscal variables on economic growth in Asian economies. Thus, this study aims at filling a gap in research devoted solely to investigating the effect and relationship between fiscal policy and economic growth using of newly developed methods of dynamic panel data by Arellano and Bond (1991) and Blundell and Bond (1998).

This paper is organized as follows. Section 2 contains a brief literature review. In section 3, the model is applied to the thirteen Asian economies. Section 4 presents empirical results and the last section concludes.

## 2. Review of related literature

The most recent empirical literature, mainly based on panel data regressions, show that economic growth is significantly affected by fiscal policies, although there remains some lack of agreement on the sign of the effects. Economic theory suggests that fiscal multipliers are more likely to be positive when economies are relatively closed, government debt is low and fiscal expansion focuses on spending, there is considerable slack in capacity of productive. There is also some evidence of negative fiscal multipliers which is no clear consensus on the precondition for such an outcome. Gerson (1998) surveyed the theoretical and empirical literature on the effect of fiscal policy variables (government expenditure program and taxes) on economic growth. He concluded that educational attainment and public health status had significant, positive effects on per capita output growth; economies that were open to international trade grew faster than those that were closed, therefore fiscal policies that encouraged openness should encourage growth. Caselli *et al.* (1996) found robust positive contribution of the government expenditure ratio (net of defence and educational expenditure) to growth. Kneller *et al*. (1999) found that public expenditure and taxation only affected growth if they were productive and distortionary, respectively; productive government expenditure was found to positively affect growth, whereas distortionary taxation was found to be harmful for growth. With this distinction they argued that both sides of the government budget should be considered in estimating the impact of fiscal policy on growth, as their financing offset the growth-enhancing effects of productive expenditure.

Studying the relationship between government expenditure and economic growth is becoming of crucial importance to divide government activities in several categories and methodologies. Zagler and Dürnecker (2003) surveyed the literature on fiscal policy and economic growth. They presented a unifying framework for the analysis of long run growth implications of government expenditures and revenues. They found that the level of education expenditure and the growth rate of public infrastructure investment both exhibited a positive impact on the growth rate of the economy. Tanzi and Zee (1997) examined systematically the various ways that the main fiscal instruments (tax policy, public expenditure policy, budget policy) influenced economic growth through their impact on the determinants of growth. Yasin (2003) studied the relationship between government expenditure and economic growth. His studies re-examined the effect of government spending on economic growth using panel data set from Sub-Saharan Africa. The results from both estimation techniques indicated that government spending, trade-openness, and private investment spending all had positive and significant effect on economic growth. Biswas and Ram (1986) used data from 55 countries over the period 1960-1977 and found that defence expenditure has no significant effect on output growth. Abu-Bader and Abu-Qarm

(2003) used multivariate cointegration and variance decomposition techniques to investigate the causal relationship between government expenditure and economic growth. Cross section growth regressions had been used to assess the relationship between defence expenditure and economic growth. They found that when considering overall government expenditure, there was bidirectional causality between government spending and economic growth with a negative long run relationship in the cases of Israel and Syria, and a unidirectional negative short-run causality from economic growth to government spending in the case of Egypt.

Landau (1986) examined the possibility that the impact of defence expenditure on output growth was nonlinear, with relatively low levels of defence expenditure enhancing output growth, but relatively low levels of defence expenditure inhibiting growth. He found that this was in fact the case, with a positive relationship between defence expenditure and output growth holding until defence expenditure reached about 4 percent of GDP and a negative relationship taking over at about 9 percent of GDP. For sub-samples restricted to Latin America and Africa, he found a significant, positive relationship between defence expenditure and the share of government education and health expenditure in GDP.

Hassan *et al.* (2003) stated that there were essentially four arguments showing military expenditure retarding economic growth. First, higher defence expenditures could crowd out both public and private investment that might be more growth-oriented and need-based than those of defence spending. This crowding out of essential investment might have an adverse impact on the long-run economic growth. Second, defense expenditure can cause balance of payment problems if hard-earned foreign exchanges were used to purchase arms and defence hardware. Third, defence might inhibit growth by diverting resources from the export sector, which was often considered an engine of growth. Finally, the defence sector limited growth through inefficient bureaucracy and excess burdens created by taxes necessary to finance military spending. Since defence spending could cause both positive and negative effects, its final impact on growth would depend on the strength of the opposing forces.

Devarajan *et al.* (1996) investigated the relationship between the compositions of public expenditure and economic growth. Using a simple, analytical model, they derived conditions under which a change in the mix of public spending could lead to a higher steady-state growth rate for the economy. Based on the model, their empirical results suggested that expenditures that were normally considered productive could become unproductive if there was an excessive amount of them. Glomm and Ravikumar (1994) considered the relationship between government expenditure on infrastructure or education and economic growth, and the implication of their models' yield depended on how the expenditures were being conceived and how they looked at the effects of taxes that had to be raised to finance the expenditure. Therefore the general implications that seem to follow from these models are that one expects partially a positive correlation of growth with productive expenditure (e.g infrastructure and education) and partially a negative correlation with government consumption and distortionary taxes.

Abdullah *et al.* (2008) used the Pedroni Cointegration method to establish a long run relationship between fiscal policy and economic growth. They found a positive and statistically significant impact of health and education expenditure, aggregate of government expenditure and aggregate of fiscal policy on real per capita GDP. They also found that the defence expenditure, distortionary taxation and budget balance are significantly and negatively related to real per capita GDP. Barro and Sala-i-Martin (1995) found that government expenditure in education, health, and other services could contribute indirectly towards raising the marginal productivity of private sectors via their contribution on human capital accumulation. Chen and Gupta (2006) examine the government expenditure in health and education and other structural factors that may have an effect on economic growth. They apply the GMM estimation technique which is the set explanatory variables included in the growth regression specification are based on the endogenous growth theory and can all be considered to be important determinants of economic growth. The results show that the coefficient on government expenditure in health and education is negative but is small in absolute value.

## 3. Empirical model

As follow Hoeffler (2002) and Abdullah *et al* (2008), in the Solow model (1956) in which growth in output per worker depends on initial output per worker [y(0)], the initial level of technology [A(0)], the rate of technological progress (g), the savings rate (S), the growth rate of the labour force (n), the depreciation rate ($\delta$), and the share of capital in output ($\alpha$). Thus, the model predicts that a high saving rate will affect growth in output per worker positively, whereas high labour force growth (corrected by the rate of technological progress and the rate of depreciation) will have a negative effect on growth in output per worker. The basic Solow model is

$$\ln y_t - \ln y_0 = \ln y_0 + \ln A_0 + g_t + (\alpha/1-\alpha) \ln S - (\alpha/1-\alpha)\ln(n+g+\delta)$$

(1)

where $y_t$ denotes the logarithm of output per worker in period $t$.

In the augmented version of the Solow model investment in human capital is an additional determinant of growth in output per worker

$$\ln y_t - \ln y_0 = \ln y_0 + \ln A_0 + g_t + (\alpha/1\text{-}\alpha\text{-}\beta)\ln S_k + (\beta/1\text{-}\alpha\text{-}\beta)\ln S_h - (\alpha/1\text{-}\alpha)\ln(n+g+\delta) \qquad (2)$$

where $S_k$ and $S_h$ denote the proportion of output invested in physical and human capital, respectively.

Equations (1) and (2) have for example been used as the framework for empirical analysis by Mankiw *et al.* (1992), Islam (1995) and Caselli (1996). In this section, a simple model is set out that provides an organizing framework for thinking about the ways in which the elements and components of fiscal variables affect growth. Therefore, we adopt the framework introduced by Mankiw *et al.* (1992), Demetriades and Law (2006), Ghura and Hadjimichael (1996), Hoeffler (2002), and Knight *et al.* (1993). This study provides a growth model from the conventional growth accounting framework and the production function below takes the standard neoclassical form with a minor modification which includes human capital in the Cobb-Douglas production function:

$$Y_t = K_t^{\alpha} H_t^{\beta}(A_t L_t)^{1-\alpha-\beta}, \; 0 < \alpha < 1. \qquad (3)$$

where $Y$ is real output at time $t$, $K$ and $L$ are the stocks of physical capital and labour, respectively, at time $t$, $H$ is the stock of human capital, $A$ is a similar measure for physical capital, and $\alpha$ and $\beta$ the share of capital and human capital on output. $A$ is a labour-augmenting factor reflecting the level of technological development and efficiency in the economy and the subscript $t$ indicates time. This equation states merely that at any moment, the total output of the economy depends on the quantity and quality of physical capital employed, the quantity of labour employed, and the average level of skills of the labour force. Output can only increase if $K$, $L$, $A$, or $H$ also increases, and perpetual increases in output per worker can only occur if the stock of capital per worker or the average quality of labour or of capital also increases perpetually.

We assume that $\alpha + \beta < 1$ which implies that there are decreasing returns to all capital raw labour and labour-augmenting technologies are assumed to grow according to the following functions:

$$L_t = L_0 e^{nt} \qquad (4)$$

$$A_t = A_0^{gt+P\theta} \qquad (5)$$

where $n$ is the exogenous rate of growth of the labour force, $g$ is the exogenous rate of technological progress, $P$ is variables of vector of government expenditure and fiscal policy that can affect the level of technology and efficiency in the economy, and $\theta$ is a vector of coefficient related to these variables.

Demetriades and Law (2006) state that variable $A$ depends on exogenous technological improvements and the level of other variables. Variable $A$ in this study is differing from $A$ used by Mankiw *et al.* (1992). This modification is more likely to be particularly relevant to the empirical cases of the link between government expenditure, fiscal policy and economic growth. The technological improvements are encouraged by development in public investment spending and fiscal policy which tend to contribute to economic growth (Ramirez and Nazmi, 2003).

In the steady state, output per worker grows at the constant rate g, which is the exogenous component of the growth ret of the efficiency variable $A$ (Demetriades and Law, 2006). Hence, this output can be obtained directly from the definition of output per effective worker as follows:

$$Y_t/A_t L_t = (k_t)^{\alpha} (h_t)^{\beta} \qquad (6)$$

$$Y_t/L_t = A_t (k_t)^{\alpha} (h_t)^{\beta}$$

Let $y_t^* = (Y_t/L_t)^*$

Taking logs both of Equation (6) and log income per worker at a given time; time 0 for simplicity is

$$\ln(Y/L)^* = \ln A + \alpha \ln k^* + \beta \ln h^* \qquad (7)$$

Where $A_t = A_0 e^{gt-P\theta}$

The main equation of this model used for estimation purposes in equation (8) below:

$$\ln(Y/L)^* + \ln A_0 + g_t + (\alpha/1\text{-}\alpha\text{-}\beta)\ln S_k + (\beta/1\text{-}\alpha\text{-}\beta)\ln S_h - (\alpha+\beta/1\text{-}\alpha\text{-}\beta)\ln(n+g+\delta) \qquad (8)$$

Equations (8) indicate steady state output per worker or labour productivity where a vector of fiscal variables proxies exist, while $S_k$ is the savings in physical capital, $S_h$ is the savings in human capital, and $\delta$ is the rate of depreciation.

Before proceeding to estimate the model, it is necessary to write equation (8) in terms of per capita output. Note again that for Mankiw *et al.* (1992):

$$\ln A_0 = \alpha + \varepsilon$$

(9)

On the other hand, for Islam (1995) and Caselli *et al* (1996):

$$\ln A_t = \ln A_0 + g_t$$

(10)

Out model differs from Caselli *et al* (1996) and Islam (1995) where we assumes that $S_h$ and $gt$ do not vary over time but $S_k$ and $n$ can be assumed to vary over time. This means that $\ln A_0$, $gt$ and $S_h$ can be considered as a constant term $A_0$. Therefore, the steady-state output per worker or labour productivity ($y^*$) grows according to the following equation:

$$\ln(Y/L)^* = A_0 + \theta\ln P + (\alpha/1-\alpha-\beta)\ln S_k + - (\alpha+\beta/1-\alpha-\beta)\ln(n+g+\delta)$$

(11)

The above equation introduces a set of variables ($P$) which is assumed as exogenous that could affect economic growth in the long run. With the introduction of endogenous growth theory, $P$ is no longer assumed as exogenous. The endogenous treatment of $P$ allows us to suggest a possible set of explanatory variables. This model differs from neoclassical production functions in two important categories of variables namely technology related variables and policy related variables. The key assumption about productivity growth here is that a typical developing county purchases technology knowledge abroad from various suppliers. What technology will be purchased depends on the price of foreign technology as well as trade and exchanged rate policies that impact the final cost of the imported technology (Ramirez and Nazmi, 2003). In our model, we concentrate on policy related variables and we introduce fiscal variables as a proxy for policy related variables.

As with studies of the impact of health, education and defence expenditure on economic growth, some dispersion of results is a natural outcome of differences in data sets and specifications. Therefore we proposed empirical Model 1 is as follows for the effect of components of government expenditure on economic growth:

$$\ln Y_{it} = \beta_0 + \beta_1\ln Y_{it-1} + \beta_2\ln he_{it} + \beta_3\ln ee_{it} + \beta_4\ln de_{it} + \beta_5\ln OFV_{it} + \beta_6\ln S_{kit} - \beta_7\ln(n+g+\delta)_{it} + \varepsilon_{it}$$

(12)

where $Y_{it}$ is real GDP per capita, $Y_{it-1}$ is the initial level of per capita GDP, $he_{it}$ is a government expenditure on health to GDP, $ee_{it}$ represents government expenditure on education to GDP, $de_{it}$ is a government expenditure on defence to GDP, $OFV_{it}$ is an aggregate of other fiscal variables as a share of GDP (obtained by summing up public sector wages and salaries, expenditure on other goods and services, transfers and subsidies, interest payment on government debt, capital expenditure (minus government expenditure on health, education and defence), tax revenues, nontax revenue, and grant), $S_{kit}$ is the savings in physical capital, $(n+g+\delta)$: $n$ is the rate of labour growth, $g$ is the rate of technology growth or technological progress and $\delta$ is the rate of depreciation. The addition of $g$ and $\delta$ is assumed to be constant across countries and over time, following Islam (1995), Mankiw *et al.* (1992) and Caselli *et al* (1996), technological progress and the depreciation rate were assumed to be constant across countries and that they sum up to 0.05. The natural logarithm of the sum of population growth and 0.05 was calculated for $\ln(n+g+\delta)$, $i$ is a cross-section data for countries referred to, and $t$ is a time series data, $\varepsilon_{it}$ is an error term. The constant is denoted $\beta_0$ while $\beta_1 - \beta_7$ are the coefficients showing how much a one unit increase in each individual variable will affect the growth rate in economic growth.

We also proposed empirical Model 2 for the effect of ditortionary taxation and budget balance on economic growth as follows:

$$\ln Y_{it} = \beta_0 + \beta_1\ln Y_{it-1} + \beta_2\ln dt_{it} + \beta_3\ln bb_{it} + \beta_4\ln GE_{it} + \beta_5\ln S_{kit} - \beta_6\ln(n+g+\delta)_{it} + \varepsilon_{it}$$

(13)

where $Y_{it}$ is real GDP per capita, $Y_{it-1}$ is the initial level of per capita GDP, $dt_{it}$ is a distortionary taxation as a share of GDP (obtained by taxes on income and profit + social contribution + taxes on payroll and + taxes on property), $bb_{it}$ represents budget balance as a share of GDP [obtained by (tax revenue + nontax revenue + grants) − (current expenditure + capital expenditure (minus government expenditure on health, education and defence)], $GE_{it}$ is an aggregate of independent government expenditure variables as a share of GDP (obtained by summing up the government expenditure on health, education, and defence), $S_{kit}$ and $(n+g+\delta)_{it}$ are as defined earlier in Equation (12), $i$ is a cross-section data for countries referred to, and $t$ is a time series data, $\varepsilon_{it}$ is an error term. The constant is denoted as $\beta_0$ while $\beta_1 - \beta_6$ are the coefficients showing how much a one unit increase in each individual variable will affect the growth rate in economic growth.

### 3.1 Dynamic panel data estimation procedure

Follow Hoeffler (2002), in a panel data model we can then explicitly account for permanent unobserved country specific effects, $\eta_i$. This provides a panel data model of form

$$y_{it} = \alpha + \beta y_{it\text{-}1} + \gamma x_{it} + \eta_{it} + v_{it}$$

(14)

where $y_{it}$ denotes the growth rate of real per capita GDP, $y_{it\text{-}1}$ is the initial level of real per capita GDP, $t$ denotes points in time $t = 2, \dots.$T. For example $y_{it}$ may reflect the average growth rate over a series of four year period, with $y_{it\text{-}1}$ being the level of real per capita GDP at the beginning of these periods, and $x_{it}$ being measured either at the beginning of each period, or as an average over each of the four year periods.

Since the relevant four year growth rate in Equation (14) is logarithmic difference in GDP per capita, we have the following dynamic panel data model

$$y_{it} - y_{it\text{-}1} = \alpha + \beta y_{it\text{-}1} + \gamma x_i + \eta_{it} + v_{it}$$

(15)

or equivalently

$$y_{it} = \alpha + \beta^* y_{it\text{-}1} + \gamma x_{it} + \eta_i + v_{it} \qquad (16)$$

where $\beta^* = (\beta + 1)$. It is important to note that the typical panel in the study of economic growth then has a small number of time series period, i.e. T is small. Asymptotic results discussed below focus on the case where the number of countries N becomes large for fixed T.

3.1.1 OLS levels estimation and within groups estimation

In this section also we adopts the autoregressive model from Bonds (2002), compromising the estimation of the following equation:

$$Y_{it} = \alpha y_{it} + (\eta_i + v_{it}); \; |\alpha| < 1; \; I = 1,2,\dots, N; \; t = 2.3\dots\dots,T$$

(17)

where $y_{it}$ is an observation on some series for individual $i$ in period $t$, $y_{it\text{-}1}$ is the observation on the same series for the same individual in the previous period, $\eta_i$ is an unobserved individual-specific time-invariant effect which allows for heterogeneity in the means of the $y_{it}$ series across individuals, and $v_{it}$ is a disturbance term. A key assumption we maintain throughout is that the disturbances $v_{it}$ are independent across individuals.

As Hsio (1986) shows, omitting unobserved time invariant country effects in a dynamic panel model will cause OLS levels estimate to be biased and inconsistent. The lagged dependent variable, $y_{it\text{-}1}$, is positively correlated with the permanent effects, $\eta_i$. As a result the OLS levels estimate of coefficient $\beta^*$ in the typical regression is likely to be biased upward (Hoeffler, 2002).

Alternatively, the Within Groups estimator differences all variables from their respective time means. It is assumed that all right hand side variables are strictly exogenous, which is violated at least by the lagged variable. As such, it introduces a significant correlation between non-exogenous variables and the time-demeaned error term (Bond, 2002), which decreases as the number of periods tends towards infinity (Baltagi, 1995). For this method model in Equation (17) is transformed by subtracting out the time series means of each variable for each country. The within groups estimator eliminates this source of inconsistency by transforming the equation to eliminate $\eta_i$. Specifically the mean values of $y_{it}$, $y_{it\text{-}1}$, $\eta_i$ and $v_{it}$ across $T$–1 observation for each individual $i$ are obtained, and the original observations are expressed as deviations from these individual means. Within groups estimator is also inconsistent and standard results for omitted variables bias indicate that, at least in large samples, the within groups estimate $\beta^*$ is likely to be biased downward (Bond, 2002). Consequently, the estimate $\beta^*$ obtained from OLS levels can be regarded as an approximate upper bound on this coefficient, and the estimate obtained from within groups estimation can be regarded as an approximate lower bound (Hoeffler, 2002).

3.1.2 GMM estimators for dynamic panel data model

The GMM estimator proposed by Arellano and Bond (1991), known as two-step estimation, is constructed in two phases. Firstly, first differences regressions and/or instruments from the dynamic panel data model are calculated to control for unobserved effects; then, second, using lagged observations values of right-hand side explanatory variables in levels as their instruments. With lagged dependent variable and other endogenous regressors, the lagged levels are dated $t$-2 and earlier. If there are predetermined regressors, all their lagged levels are used as instruments.

Consider the panel data model specification

$$y_{it} - y_{i,t-1} = (\beta^* - 1)y_{i,t-1} + \gamma x_{it} + u_{it}$$

(18)

$$u_{it} = \eta_i + v_{it} \qquad (19)$$

where $y_{i,t}$ is the logarithm of dependent variables, $x_{i,t}$ is the set of other endogenous variable, $u_{it}$ is the time-specific effects, $\eta_{it}$ is the country-specific effects, and $v_{it}$ is the error term. For i = 1, …, N, t = 2, …T. The single regressor

$x_{it}$ is correlated with $\eta_i$ and predetermined with respect to $\varepsilon_{it}$, meaning that $\mathrm{E}(x_{it}\, v_{it+s}) = 0, s = 0,...,T - t$, but $\mathrm{E}(x_{it}\, v_{it+s}) \neq 0, r = 1,...,t - 1$. A commonly used estimator is the GMM estimator in the model in first difference (Arellano and Bond, 1991),

$$\Delta y_{it} = \beta * \Delta y_{i,t-1} + \gamma \Delta x_{it} + \Delta u_{it}; \quad t = 2,....,T \tag{20}$$

After accounting for the time-specific effects and grouping all explanatory variables in a vector $x$, Equations (18), (19), and (20) can be rewritten as:

$$\Delta y_{it} = \beta * \Delta y_{i,t-1} + \gamma \Delta x_{it} + \Delta \eta_{it} + \Delta v_{it}$$
$$\tag{21}$$

The estimation of cross-country effects is based on a regression on time-averaged data. In order to sweep out unobserved individual country specific effects $\eta_i$ that are a source of inconsistency in the estimates and specified and in order to obtain a consistent estimate of $\beta *$ as $N \to \infty$ for fixed T we take first difference of equation (16):

$$y_{it} - y_{i,t-1} = \beta * (y_{i,t-1} - y_{i,t-2}) + \gamma (x_{it} - x_{i,t-1}) + (v_{it} - v_{i,t-1})$$

$$\tag{22}$$

Since the differenced lagged dependent variable and the differenced error term are correlated OLS estimation of (22) will not produce a consistent estimate of $\beta *$, even if the regressor, $x_{i,t}$ is strictly exogenous.

The GMM estimator which was suggested by Arellano and Bond (1991) is known to be rather inefficient when instruments are weak because it makes use of the information contained in differences only. Blundell and Bond (1998) suggest making use of additional level information besides the differences. The combination of moment restrictions for differences and levels results in an estimator which was called GMM-system estimator.

Following Arrelano and Bond (1991) and Hoeffler (2002) we can use values of the predetermined $x_{it}$ lagged one period or more as valid instruments in the first differenced growth equation. It is also straightforward to treat for example investment as an endogenous variable. This means that we are allowing for correlation between current investment and current shocks to GDP, as well as feedback from past shocks to GDP, i.e.

$$E(x_{it}v_{is}) \neq 0 \qquad\qquad \text{for } s \leq t$$

and

$$E(x_{it}v_{is}) = 0 \qquad\qquad \text{for } s > t \quad\quad \text{only}$$

In this case, valid instruments in the differenced equation are values of the endogenous $x_{it}$ lagged two periods or more.

Blundell and Bond (1998) show that estimators relying on lagged levels as instruments for current differences are likely to perform poorly when the series are close to a random walk. In this case the available instruments are only weakly correlated with the endogenous variables, and the GMM estimator is likely to suffer from serious finite sample bias, as well as imprecision (Hoeffler, 2002). Instead they suggest estimating a system combining two sets of equation. One set of equations is the differenced equation (22) as follow:

$$y_{it} - y_{i,t-1} = \beta * (y_{i,t-1} - y_{i,t-2}) + \gamma (x_{it} - x_{i,t-1}) + (v_{it} - v_{i,t-1})$$

For which we use suitably lagged levels of $y_{it}$ and $x_{it}$ as instruments, as discussed for the first differenced GMM estimation. The other set of equation in the system are the levels equation

$$y_{it} = \alpha + \beta * y_{i,t-1} + \gamma x_{it} + \eta_i + v_{it}$$

Provided the $x_{it}$ regressor satisfies

$$E(\Delta x_{it}\eta_i) = 0$$
$$\tag{23}$$

and the initial conditions satisfy the restriction

$$E(\Delta y_{i2}\eta_i) = 0 \tag{24}$$

Arrelano and Bover (1995) proposed estimators of $\Delta y_{i,t-1}$ and $\Delta x_{it}$ as instruments in the level equation. Assumed that equation (23) allows the level of $x_{it}$ to be correlated with the unobserved country specific effects, $\eta_i$, but requires the changes in $x_{it}$ to be uncorrelated with $\eta_i$. Given equation (23), assumption equation (24) will be satisfied provided the process equation (16) has been generating the $y_{it}$ series for a sufficiently long time (Hoeffler, 2002).

The consistency of the GMM estimators depends on whether lagged values of the explanatory variables are valid instruments in the growth regression. We address this issue by considering two specification tests suggested by Arellano and Bond (1991) and Arellano and Bover (1995). The first is a Sargan test of over-identifying restrictions, which tests the overall validity of the instruments. Failure to reject the null hypothesis gives support to the model. The second test

examines the null hypothesis that the error term is not serially correlated. As with the Sargan test, the model specification is supported when the null hypothesis is not rejected. In the system specification we test whether the differenced error term (that is, the residual of the regression in differences) is second-order serially correlated. Second-order serial correlation of the differenced residual would indicate that the original error term is serially correlated and follows a moving average process at least of order one. This would reject the appropriateness of the proposed instruments (and would call for higher-order lags to be used as instruments).

The test statistic AR(1) ($m_1$) and AR(2) ($m_2$) test for presence of serial correlation in the first differenced residuals of first and second order, respectively; they are asymptotically normally $N(0,1)$ distributed under the null of no serial correlation (Arrelano and Bond, 1991). First order autocorrelation (AR (1)) is expected to be negative significant but according to the second order autocorrelation (AR (2)) test there is no significant which the crucial point with respect to the validity of the instruments.

*3.2 Data*

The data set consists of a panel of observations for thirteen Asian countries namely China, Hong Kong, China, Korea, Japan, Indonesia, Malaysia, Philippines, Singapore, Thailand, Bangladesh, India, Pakistan, and Sri Lanka for the period 1982-2001.These data contain a number of time invariant and time varying variables, where the time varying variables are averaged over four year. All data are collected from the World Development Indicator (World Bank CD-ROM 2005), Asian Development Bank (ADB, 2004), and The Government Finance Statistics in various years (GFS).

## 4. Empirical results

In this section, results will be presented for the dynamic panel data estimators of Model 1 and Model 2 in Table 1 and Table 2 which are a version of the augmented Solow model, where the logarithm of the government expenditure in health, education and defence, distortionary taxation, budget balance, aggregate of government expenditure, aggregate of other fiscal varibles, the savings in physical capital, and population growth Results will be outlined for GMM estimation in difference (DIF) and system (SYS) version and also the OLS level and within group's estimation techniques.

*4.1 OLS and within groups results*

Table 1 and Table 2 follow the suggestion of Arrelano and Bond (1991) and Blundell and Bond (1998, 1999), all regressions includes time dummies which we found to be jointly significant in every regression. The tables show the parameter estimates, (in parenthesis) the standard errors of the parameter estimates (robust to arbitrary forms of cross-sectional and time-series heteroskedasticity) and a selection of diagnostic statistics.

In Table 1 and Table 2, the left hand side variable is the change in the logarithm of explanatory variables. We begin our analysis with an OLS regression in column 2 through Table 1 and Table 2, the estimate of the coefficient for the initial per capita GDP (ln$rgdp_{it-1}$) is negative [-1.244 (Model 1) and -1.754 (Model 2] and statistically significant at 1 percent level for all models. The negative coefficient on initial GDP as in most published growth regressions is interpreted as conditional convergence as suggested by the Solow model (Hoeffler, 2002). In Table 1, the estimate of the coefficient of the government expenditure in health (ln$he$) is positive (3.672) and statistically significant at the 1 percent level, while the estimate of the coefficient of the government expenditure in education (ln$ee$)  is also positive (5.429) and statistically significant at the 1 percent level. Therefore, results in Table 1 shows that education and health expenditures have significant effect on real per capita GDP growth. Thus, we found that educational and health expenditures increase growth.

The estimate of the coefficient of the government expenditure in defence (ln$de$) is negative [-4.160 (Model 1)] and statistically significant at the 1 percent level. Therefore, we found that defence expenditure has an adverse effect on economic growth that is, increase in defence expenditures will decrease economic growth.

Table 2 shows that there is a negative coefficient (-0.078) and statistically significance at the 5 percent level for the distortionary taxation (ln$dt$) in Model 2. Thus distortionary taxation has adverse effect on economic growth which is a negative relationship. The estimate of the coefficient of the budget balance (ln$bb$) is also negative (-1.549) and statistically significant at the 5 percent level. Thus budget balance has a significant and adverse effect on real per capita GDP growth.

The estimate of the coefficient for the aggregate of other fiscal variables is positive (0.184) and statistically significant at the 5 percent level in Model 1. Thus aggregate of other fiscal variables has a positive and significant effect on real per capita GDP growth. The estimate of the coefficient for the aggregate of government expenditure (ln$GE$) is positive (1.950) and statistically significant at the 5 percent level in Model 2. Thus aggregate of government expenditure has a positive and significant effect on real per capita GDP growth.

By assuming the savings in physical capital (investment) (ln$S_k$) is potentially endogenous variable and current population growth rate is potentially exogenous variable, these estimates already allow for the possibility of serially

uncorrelated measurement error in either of these explanatory variables. In Table 1 and Table 2, we found that the estimate of the coefficient for the savings in physical capital (investment) ($\ln S_k$) is positive for all models [0.369 (Model 1) and 0.945 (Model 2)] and statistically significant at the 5 percent level in column 2 (Model 1) and statistically significant at the 1 percent level for Model 2. Therefore, this indicates that savings in physical capital (investment) ($\ln S_k$) has a significantly positive effect on the steady state level of per capita GDP growth. Column 2 in Table 1 and Table 2 also shows that the coefficient on population growth ($\ln(n+g+\delta)$) is negative [-1.113 (Model 1) and -1.018 (Model 2)] and statistically significant at the 1 percent level in both models. This is in line with the neoclassical growth model that predicts that as population increases, the steady state level of per capita GDP will decline through lowering of the capital labour ratio. Thus, our findings here is also in line with Solow model which is, the negative coefficient on initial GDP as in most published growth regressions is interpreted as conditional convergence while investment is positive and population growth is negative.

Overall, based on the Table 1 and Table 2 and the argument above, in accordance with expectations in the presence of firm-specific fixed effects, OLS panel estimates seem to deliver an upward-biased estimate of the lagged dependent variable coefficient.

Our analysis with a within groups estimator was used; the results are shown in the third column of Table 1 and Table 2. We found that the estimate of the coefficient for the initial per capita GDP ($\ln rgdp_{it-1}$) is negative [-1.563 (Model 1) and -2.220 (Model 2)] and statistically significant at 1 percent level for both models. Same as in OLS estimate, the negative coefficient on initial GDP as in most published growth regressions is interpreted as conditional convergence as suggested by the Solow model. Therefore, comparing the estimated coefficient of the OLS levels regression and the within groups estimation, we found that the OLS levels provides a higher estimate for the coefficient on the initial real per capita GDP than the within groups estimation for all models in all tables.

In Model 1, the estimate of the coefficient of the government expenditure in health ($\ln he$) is positive (4.121) and statistically significant at the 1 percent level, while the estimate of the coefficient of the government expenditure in education ($\ln ee$) is also positive (6.037) and statistically significant at the 1 percent level. Thus, government expenditure on health and education has a positive and significant effect on real per capita GDP growth in within group's estimation. The estimate of the coefficient of the government expenditure on defence ($\ln de$) is negative (-5.805) and statistically significantly at the 1 percent level. Thus defence expenditure has a negative and significant effect on real per capita GDP. Table 2 shows that there is a negative coefficient (-0.090) and statistically significance at the 5 percent level for the distortionary taxation ($\ln dt$) in Model 2. The estimate of the coefficient of the budget balance ($\ln bb$) is negative (-0.065) and statistically significant at the 5 percent level in column 3. Thus, distortionary taxation and budget balance has a positive and significant effect on real per capita GDP growth in within groups estimation.

Model 1, the estimate of the coefficient for the aggregate of other fiscal variables ($\ln OFV$) is positive (0.418) and statistically significant at the 5 percent level in Table 1. Thus, the aggregate of other fiscal variables has a positive and significant effect on real per capita GDP growth. In Table 2, the estimate of the coefficient for the aggregate of government expenditure ($\ln GE$) is positive (2.461) and statistically significant at the 5 percent level. Thus, aggregate of government expenditure has positive and significant effects on real per capita GDP.

The estimate of the coefficient for the savings in physical capital (investment) ($\ln S_k$) is positive [0.471 (Model 1 and 0.694 (Model 2)] and statistically significant at the 5 percent level in both models. The coefficient for the population growth ($\ln(n+g+\delta)$) is negative [-1.120 (Model 1) and -0.956 (Model 2)] and statistically significant at the 1 percent level in both models. Thus, institutions and savings in physical capital have a positive and significant effect on real per capita GDP growth and population growth is negative and has a significant effect on real per capita GDP growth.

*4.2 First differenced gmm and system gmm results*

Hoeffler (2002) argues that for special cases of spherical disturbances, the one-step and two-step GMM estimators are asymptotically equivalent for the first-differenced estimator (Arellano and Bond, 1991). In this case the two-step estimator is more efficient. Therefore, Column 4 presents the results using the Arellano and Bond (1991) first differenced GMM estimator in Table 1 and Table 2 for Model 1 and Model 2. We assume that the initial GDP is predetermined and investment is endogenous. We also assume that current population growth is exogenous, in the sense of being uncorrelated with shocks to GDP per capita. This allows the use of both current and lagged levels of population growth as instruments in the first differenced equation. The OLS level will give an estimate of $\beta$ that is biased upwards in the presence of individual-specific effects (Hsiao, 1986) and within groups will give an estimate of $\beta^*$ that is seriously biased downwards in short panel (Nickell, 1981). Thus, a consistent estimate of $\beta^*$ can be expected to lie in between the OLS levels and within groups estimates. If we observe that the first differenced GMM estimate is close to or below the Within groups estimate, it seems likely that the GMM estimate is also biased downwards in our application, perhaps due to weak instruments.

In Column 4 Table 1 and Table 2, we found that all coefficients are positive and statistically significant at the 1 percent and 5 percent level, except the coefficient of population growth ($\ln(n+g+\delta)$), government expenditure on defence, distortionary taxation, and budget balance are negative but still statistically significant at 1 percent and 5 percent level. From these tables we found that the first differenced GMM estimate of the coefficient on the initial real per capita GDP in all tables are negative [-1.472 (Model 1) and -1.927 (Model 2)] and statistically significant at the 1 percent level in both models. These results lies close to the within groups estimate. Therefore, we can conclude that our case for the first differenced GMM estimate seems to be downward biased, because it is very close to the within groups estimate which is expected to be seriously biased downwards in a short panel with six or fewer time periods (Nickell, 1981).

In Column 4, the estimate of the coefficient of the government expenditure in health ($\ln he$) is positive [4.583 (Model 1)] and statistically significant at the 1 percent level, while the estimate of the coefficient of the government expenditure in education ($\ln ee$) is positive [5.220 (Model1)] and statistically significant at the 1 percent level in Table 1. Therefore, the education and health expenditures have significant effects on real per capita GDP growth and this result is consistent with the results from the Fully Modified OLS which has been discussed earlier.

Table 2 shows that there is a negative coefficient (-0.055) and statistically significant at the 5 percent level for the distortionary taxation ($\ln dt$). The estimate of the coefficient of the budget balance ($\ln bb$) is negative (-0.113) and statistically significant at the 5 percent level. Thus, distortionary taxation and budget balance have a significant and adverse effect on real per capita GDP growth which is a negative relationship.

The estimate of the coefficient for the aggregate of other fiscal variables ($\ln OFV$) is positive [0.124 (Model 1)] and statistically significant at the 1 percent level in Table 1. The aggregate of government expenditure ($\ln GE$) is positive [2.154 (Model 2)] and statistically significant at the 1 percent level in Table 2.

In Table 1 and Table 2, the estimate of the coefficient for the savings in physical capital (investment) ($\ln S_k$) is positive [0.470 (Model 1) and 0.930 (Model 2)] and statistically significant at the 1 percent level in Model 1 and statistically significant at the 5 percent level in Model 2. The coefficient on population growth ($\ln(n+g+\delta)$) is negative [-0.797 (Model 1) and -0.735 (Model 2)] and statistically significant at the 1 percent level for both models. Again we found that the results for the savings in physical capital (investment) and population growth in first differenced GMM are in line with the Solow model which is the negative coefficient on initial GDP as in most published growth regressions is interpreted as conditional convergence while investment is positive and population growth is negative.

As mentioned previously, differenced GMM results potentially suffer from a bias in the direction of within group's results, due to weak instruments, related with persistent time series. In such case, GMM-SYS results would be preferable. The presented results do not seem to point towards a major problem, since the GMM-DIF estimations are situated quite central amongst the two extremes of OLS and within groups. This leads to the conclusion that the system GMM results shown in Table 1 and Table 2 are to be the preferred parameter estimates.

The system GMM estimator thus combines the standard set of explanatory variables in first differences with suitably lagged levels as instruments, with an additional set of explanatory variables in levels with suitably lagged first differences as instrument. As an empirical matter, the validity of these additional instruments can be tested using standard Sargan tests of over-identifying restriction (Arrelano and Bond, 1991). For system GMM the two-step estimator is always more efficient than the one-step estimator. However, Monte Carlo studies show that the efficiency gain is small and that the two-step estimator converges only slowly to its asymptotic distribution. In finite samples, the asymptotic standard errors associated with the two-step GMM estimator can be seriously biased downward (Blundell and Bond, 1998). Therefore, we follow Hoeffler (2002) who prefer to report the one-step estimates. The fifth columns of Table 1 and Table 2 report the results from using system GMM, again treating investment as endogenous and population growth as exogenous in the sense described before. The estimate of the coefficient on the initial real per capita GDP is not obviously biased which lies well above the within groups estimate and well below the OLS levels estimate, and the estimates of the coefficients are more precise than the ones obtained from first differenced GMM. We agreed with Hoeffler (2002) where the additional instruments using the system GMM estimator appear to be both valid and highly informative in this context.

In Column 5 (Table 1), the estimate of the coefficient of the government expenditure in health ($\ln he$) is positive (4.524) and statistically significant at 1 percent level, while the estimate of the coefficient of the government expenditure in education ($\ln ee$) is also positive (5.863) and statistically significant at the 1 percent level. Therefore, we found that educational and health expenditures increase growth and this result is also consistent with the results from OLS, within groups and first differenced GMM as discussed earlier. These findings may also be supported by the evidence that many other authors also found that a significant positive effect on growth from education and health expenditures (Barro and Sala-i-Martin 1995; Hansson and Henrekson 1994; Chen and Gupta 2006; Dreger and Reimers 2005). The estimate of the coefficient of the government expenditure on defence ($\ln de$) is negative (-1.703) and statistically significantly at the 1 percent level in Model 1. Thus, defence expenditure has a negative and significant effect on real per capita GDP.

Table 2 shows that there is a positive coefficient (-0.018) and statistically significant at the 1 percent lever for the distortionary taxation (ln*dt*) in Model 2. The estimate of the coefficient of the budget balance (ln*bb*) is positive (-1.359) and statistically significant at the 1 percent level both models. Thus, distortionary taxation and budget balance have a significant and adverse effect on real per capita GDP growth.

The estimate of the coefficient for the aggregate of other fiscal variables (ln*OFV*) is positive [0.133 (Model 1)] and statistically significant at the 1 percent level in Table 1. The aggregate of government expenditure (ln*GE*) is positive [3.010 (Model 2)] and statistically significant at the 1 percent level in Table 2. This result also, which matches as overall the finding in Levine and Renelt (1992), Devarajan *et al*. (1996) and Gemmel *et al*. (1999) show that the composition of government expenditure is a highly significant factor in economic growth. Again we found that the aggregate of other fiscal variables and aggregate of government expenditure have a positive and significant effect on real per capita GDP growth in system GMM.

In Table 1 and Table 2, as expected, the estimate of the coefficient for the savings in physical capital (investment) (ln$S_k$) is positive [0.270 (Model 1) and 0.632 (Model 2)] and statistically significant at the 1 percent level in both models. The coefficient on population growth (ln $(n+g+\delta)$) is negative [-0.844 (Model 1) and -0.871 (Model 2)] and statistically significant at the 1 percent level for both models. Our results matched many studies which controlled capital accumulation by including the rate of investment or savings. Levine and Renelt (1992) argue that the positive correlation between growth and the share of investment in GDP is one of the few robust findings from the cross-country growth regression literature. On the other hand, there is most growth studies accounted for population growth. The effect of population growth on growth in GDP per capita tended to be negative in some studies, but this finding is rather fragile (Levine and Renelt, 1992). Therefore, we conclude that system GMM savings in physical capital have a positive and significant effect on real per capita GDP growth and population growth is negative and has significant effect on real per capita GDP growth.

*4.3 Diagnostic results*

The Diagnostics part of the Table 1 and Table 2 show three diagnostic tests of the appropriateness of the instruments used. The first test is Wald (joint) tests to test the significance of all regressors. The Wald test for the joint significance of regressors (excluding time dummies) is statistically significant at the 1 percent level in all four estimations for all models. The Wald test indicates that the initial real per capita GDP are jointly significant.

The second test is a Sargan test of identifying restrictions under the null hypothesis of the validity of the instruments (Arellano and Bond, 1991; 1998). The validity of the instrument set is checked using a Sargan test. This test is asymptotically distributed as chi-squared under the null. The instruments used in the first differenced GMM or in the system GMM are not rejected by the Sargan test of over-identifying. In Table 1 and Table 2, we found that the Sargan test of the validity of instruments used is not statistically significant at the 10 percent level in first differenced GMM and system GMM for all models. With respect to the Sargan test of over-identifying restrictions, the high *p-value* suggests that we cannot reject the null hypothesis that the set of instruments is appropriate. Therefore, the Sargan test supports the validity of the GMM estimator and GMM system and do not indicate a serious problem with the validity of the instrumental variables. This is consistent with the presence of measurement errors (Blundell and Bond, 1998; 1999), as well as instruments used in the GMM-SYS estimation and earlier do pass the test.

The third tests are the tests of first and second-order serial correlation in the first-differenced residuals, reported as the asymptotically standard normal distribution values $m_1$(AR(1)) and $m_2$(AR(2)). As required, the test for first-order autocorrelation AR (1) rejects the null; the *p-values* of the Arellano and Bond statistics in Table 1 and Table 2 at the 1 percent significance level and 5 percent significance level. While the test for second-order autocorrelation AR(2) fails to reject the null hypothesis of no autocorrelation and the statistics reported are *p-values* giving the probability of correctly rejecting the null hypothesis of no autocorrelation. Moreover, as expected, we do not find the presence of statistically significant second-order serial correlation. Therefore, both AR (1) and AR (2) test support the validity of the first differenced GMM and the system GMM estimator of Table 1 and Table 2. It was mentioned previously that the consistency of GMM-SYS estimates would be related to the absence of serial correlation in the error terms. The presented estimations clearly seem to be consistent; the absence of serial correlation shows in the differenced residuals by significant negative first order serial correlation and no second order serial correlation.

We conclude that the Wald tests of the joint significance of the variables as well as the tests for autocorrelation and the Sargan test confirm that the GMM estimator estimated for Model 1 and Model 2 in Table 2 and Table 2 are appropriate. First-differencing introduces AR (1) serial correlation when the time-varying component of the error term in levels is serially uncorrelated (Arellano and Bond, 1991; 1998). Therefore, GMM estimator is consistent only when second-order correlation is not significant although first-order correlation need not be zero. Again, the first and second order serial correlations tests are all satisfied.

**5. Conclusion**

We estimate the growth equation using the generalized method of moments (GMM) method as proposed by Arellano and Bond (1991) and GMM-system estimator by Blundell and Bond (1998) as a dynamic panel data analysis. These dynamic panel estimator controls possible endogeneity of the regressors and the possible bias in specifications with nearly integrated regressors, as is the case for GDP per capita and the explanatory variables. We found that there is a positive and statistically significant effect of government expenditure on health and education, aggregate of government expenditure and aggregate of other fiscal variables on GDP per capita. Turning to the remaining explanatory variables, we found that defence expenditure, budget balance, and distortionary taxation are significantly and negatively related to GDP per capita. Our results on initial real per capita GDP, savings in physical capital (investment) and population growth rate are in line with the neoclassical growth model that predicts that as population increases, the steady state level of per capita GDP will decline through lowering of the capital labour ratio. Thus, our findings here is also in line with the Solow model which is the negative coefficient on initial GDP as in most published growth regressions is interpreted as conditional convergence while investment is positive and population growth is negative.

Overall, we concluded that fiscal policy is one of the most important instruments of government economic policy. To establish the relationship between fiscal policy and economic growth, the mechanisms through which fiscal policy affects the above mentioned factors of economic growth have been investigated in the long run. The significance arises for two reasons. First, they can have opposite impacts on the economy. Second, there is an outside lag inherent in fiscal policy. The long run impacts of fiscal policy is not only an interesting intellectual and theoretical exercise but it also has important implications for policy making.

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Table 1. Estimation of the Model 1; Dependent variable $\Delta \ln rgdpc_{it}$

|  | OLS | Within Groups | DIF-GMM | SYS-GMM |
|---|---|---|---|---|
| ($\ln rgdp_{it-1}$) | -1.244*(0.271) | -1.563*(0.185) | -1.472*(0.112) | -0.904* (0.019) |
| ($\ln he$) | 3.672* (4.388) | 4.121* (3.974) | 4.583* (4.343) | 4.524* (8.942) |
| ($\ln ee$) | 5.429* (3.668) | 6.037* (3.374) | 5.220* (1.961) | 5.863* (5.807) |
| ($\ln de$) | -4.160* (2.872) | -5.805* (3.669) | -3.095* (1.089) | -1.703* (4.347) |
| ($\ln OFV$) | 0.184**(0.169) | 0.418** (0.203) | 0.124* (0.055) | 0.133* (0.113) |
| ($\ln S_k$) | 0.369**(0.195) | 0.471** (0.167) | 0.470* (0.162) | 0.270* (0.117) |
| ($\ln(n+g+\delta)$) | -1.113* (0.288) | -1.120* (-5.67) | -0.797* (0.311) | -0.844* (0.231) |
| No. of obs. | 52 | 52 | 52 | 52 |
| Wald test: | 269.3* (0.000) | 977.6* (0.000) | 3616.* (0.000) | 789.8* (0.000) |
| Sargan test: | - | - | 27.7 (0.428) | 167.3 (0.981) |
| AR(1) test: | -1.733**(0.043) | -2.016**(0.044) | -2.892* (0.004) | -1.779* (0.000) |
| AR(2) test: | -0.095(0.924) | -0.773 (0.439) | -1.862 (0.163) | -1.325 (0.185) |

Note: Heteroskedasticity consistent standard error is reported in parentheses; (*, **, ***) denotes the level of significance levels at 1%, 5%, and 10%, respectively. Time dummies are included and a constant is included. – The figures reported for the tests of first and second order correlation under the System-GMM column AR(1) and AR(2) as well as for the Wald test and Sargen test and are the p-values of the null hypothesis.

Table 2. Estimation of the Model 2; Dependent variable $\Delta \ln rgdpc_{it}$

|  | OLS | Within Groups | DIF-GMM | SYS-GMM |
|---|---|---|---|---|
| ($\ln rgdp_{it-1}$) | -1.754*(0.291) | -2.220*(0.345) | -1.927*(1.560) | -0.906*(0.026) |
| ($\ln dt$) | -0.078**(0.054) | -0.090**(0.077) | -0.055**(0.088) | -0.018*(0.047) |
| ($\ln bb$) | -1.549**(0.029) | -0.065**(0.026) | -0.113**(0.063) | -1.359*(0.493) |
| ($\ln GE$) | 1.950**(1.238) | 2.461**(2.458) | 2.154*(0.720) | 3.010*(1.931) |
| ($\ln S_k$) | 0.945*(0.207) | 0.694**(0.312) | 0.930**(0.801) | 0.632*(0.135) |
| ($\ln(n+g+\delta)$) | -1.018*(0.261) | -0.956*(0.284) | -0.735*(2.353) | -0.871*(0.327) |
| No. of obs. | 52 | 52 | 52 | 52 |
| Wald test: | 329.8*(0.000) | 551.5*(0.000) | 8179.*(0.000) | 229.8*(0.000) |
| Sargan test: | - | - | 26.4(0.607) | 154.1(0.151) |
| AR(1) test: | -1.793**(0.043) | -1.813**(0.040) | -2.774*(0.006) | -1.513*(0.005) |
| AR(2) test: | -0.267(0.789) | -0.858(0.391) | -1.379(0.168) | -1.188(0.235) |

Note: Heteroskedasticity consistent standard error is reported in parentheses; (*, **, ***) denotes the level of significance levels at 1%, 5%, and 10%, respectively. Time dummies are included and a constant is included. – The figures reported for the tests of first and second order correlation under the System-GMM column AR(1) and AR(2) as well as for the Wald test and Sargen test and are the p-values of the null hypothesis.

# The Study of Financial Risk in M&A

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**Abstract**

M &A is a risky activity. M & A business, whether in the preparation stage, or in the operational phase of the merger, or post-integration phase, will be accompanied by a large number of uncertainties. These uncertainties brought about by mergers and acquisitions could lead to a huge financial risk. In particular, under the current pressure of RMB appreciation, more domestic enterprises have chosen the path of M & A. This article focuses on the various stages of the merger vulnerable to financial risks, and risks of these raised a number of preventive measures.

**Keywords:** M&A, Financial risk, Preventive measures

## 1. The background analysis of M&A

In the west countries, M&A have a history about more than 100 years, and transactions have been expanding. The 5th wave of global mergers and acquisitions peaked in 2000.In our country, M&A become more and more popular. For example, many companies Step up the pace of overseas expansion and M&A. However, under the pressure of RMB appreciation, many companies choose M&A to tide over the difficulties. As we known, M&A must have risks, for instance: estimate of target firms, choice of transaction method, or financial risks. How can avoid these risks? Which method should we choose? This is the purpose of this article.

## 2. The cause of financial risk in M&A

*2.1 Overestimate or underestimate the value of firms lead to the risk*

2.1.1 Information asymmetry is the major factor which impacts the estimation

Because of Information asymmetry, target firm always conceal adverse information and exaggerate good information. Bidders also exaggerate their strength, disclosure between them are inadequate or distorted. Therefore, failures which result from rash actions can be found everywhere. There are many information risks, for tow important examples: first, equity risk, equity is very important in any firms, however there are difference between the offer information and the real, these illusive information threaten the succeed of M&A; second, debt information risk, if this risk would not be found, a large debt will fall to the bidders with no reasons.

2.1.2 Lack of rational evaluation methods

There are three evaluation methods: replacement cost method; market value method; the present value of earnings, between them, market value method has high request about Information symmetry, for firms can make an exact evaluation only when the information is high symmetry. However, in our country, the level of information symmetry is lower, little firms adopt this method. Most of them adopt replacement method and the present value of earnings method. These two methods also have disadvantages, replacement cost reflects the historical cost which can't reflect the future profitability; although the present value considers the value-added revenue, it has also obvious flaws, that is, future revenue expected is very different.

2.1.3 The system of assessment is not perfect

Here is the assessment system in the whole industry, rather than a simple method. At present, our country is lack of independent, professional bodies, the majority of overseas M&A is completed by the enterprises themselves, on this point there is a certain degree of irrationality. Because lack of professional skills, and there is no habits of long-term follow-up observation, and can't receive long-term and stable information and so on, all this lead to the result can't follow the expectation.

*2.2 Risk result from the choice of transaction methods*

2.2.1 Cash method

If you expect there is no risk in cash payment, you must make the present value of incremental of expected cash flow net present value is greater than the paid, whereas shareholders of bidders will bear the loss. When the cost of cash payment is expansion, and face huge debt burden, and the source of funding deadline is unreasonable structure, or lack of short-term financing, it is easy to bring to the acquisition of liquidity pressure. At this time if the new company has a low level of liquid assets, it will have a liquidity risk, and liquidity risk is the most outstanding performance of cash payment.

2.2.2 Common stock payment

On the whole, the major risk of stock payment comes from the value-added expectation, the stock exchange expand the shareholder's base, leading to the decline of earnings per share, when investors doubt the target firm's ability of getting back earnings per share, the stock price of bidder will decline because of dilution of earnings per share. It shows that the proportion of equity dilution resulting from the convertible is the most important means of payment risks.

2.2.3 Leverage payment

Leverage will inevitably bring the debt risk. Leverage is the bidders make target enterprise assets as collateral for loan to banks, post-merger success with the production and operation activities generated cash to repay the loan. The aim of leverage payment is to solve the fund problem by using the loans, and hope that the acquisition can receive effective leverage benefit. This method is bound to achieve a high return on investment and it need stable cash flows to complete. Otherwise, the acquiring company may go bankrupt because of can't pay off the higher debt.

*2.3 Financial risk resulting from adverse integration in the post-merger*

In the integration period, when the role of risk factors come to a certain extent, that will lead to the occurrence of financial risks. According to the manifestations, financial risk can be divided into the mechanisms risk, financial risk and operational risk. Mechanisms risk means in the integration period, because of setting up financial institutions, financial functions, financial management system, update of financial organizations, financial synergies, and other factors, the financial income and financial gains of bidders occurred in a departure from expectations, and thus suffer losses. Financial risk means financial income and financial revenue will depart from the expected if there is something wrong with the financial running. In the process of asset management, bidders control their assets, costs, financial operations, liabilities, profits, and other financial functions in accordance with the principle of maximizing the synergy earnings in order to achieve the final purpose of mergers and acquisitions. However, the uncertainty of macro-and micro-environment affect the decision-making process in the financial operation, which lead to financial risk. Operational risk means financial risk result from inadequate monitoring of financial activities.

That shows process ending is not equals to final succeed, financial integration is the end of financial management in the M&A, and is also the most important aspect, if it failed it means the whole M&A is failed.

## 3. Prevention measures of financial risk

*3.1 Prevention for information risk*

The important role for this prevention is to rule out the false information through legitimate and effective method and then to get real, comprehensive information. For the equity risk, there are two main points: an appropriate cautiousness and disclosure. Appropriate cautiousness means a process of investigation, review and evaluation. Bidders must investigate the external and internal situation of target firms, in order to find some government activities which restrict property right transaction. Disclosure means that the target company should tell the bidders just as relevant materials, information, debt claims and so on. Disclosure must be true, complete and not misleading. As for the debt risk, we must first choose the best method; second, you must make an agreement about debt scope.

*3.2 Establish a perfect evaluation system, and select appropriate assessment methods*

Appropriate evaluation methods usually include tow systems: One is the basic system which includes financial analysis, industry analysis, operating conditions analysis. Analysis of the financial system contribute to the understanding of the financial situation between the two sides, Industry analysis system, can make the bidder understand the external environment, as well as the status of industry trends. Through the analysis of operating conditions can understand the existing problems the operation, and provide the basis for integration. On this basis, enterprises can avoid this risk. Second is the evaluation system. There are many methods of the evaluation system, just as book value, market value, liquidation value, discounted cash flow and so on. Different valuation methods will lead to different price, so firms should select a better method in accordance with their own motive.

*3.3 Flexible choice of payment methods*

Reasonable arrangements for the payment method and financial cost reducing are related to the payment method in

which cash payment face the most pressure. M & A business can combine their own available resources, diluted earnings per share and stock price volatility, changes in the shareholding structure in order to make their payment as combinations of cash, debt and stock, so that it can meet the need between two sides. For example, M&A takes two-tier payment method, for the first, adopt cash method while mixed method is used when the second step. This payment, on the one hand, because of the size of the transaction, the buyer paid cash consideration of a limited capacity, should maintain a more reasonable capital structure to reduce the enormous pressure on the loan, on the other hand, bidder can induce shareholders of target firm to make sell decision as soon as possible, and then they can reach the goal of obtaining control of the business.

*3.4 To strengthen the post-merger integration*

3.4.1 Strengthening financial control, financial integration of human resources, financial institutions and functions of the organization

For example, mergers and acquisitions business was to appoint Chief Financial Officer, Chief Financial Officer has clear responsibility and authority, they play the organization and monitoring role on the M & A business from day-to-day financial activities, and enjoy the decision-making power on a major event involved in the whole enterprise; implementing the structure of the M & A Adjust, the allocation of resources, a significant investment, technology development and other major decision-making to the budget of the corporate mergers and acquisitions, monitoring and controlling various types of the budget implementation, and audit its financial reporting; being responsible for personnel management business of their own financial accounting; reporting the M & A's assets operation and financial position on a regular basis. At the same time, when the acquisition is completed, financial institutions and the functions should be improved according to the specific circumstances of their organizations, including financial accounting systems, internal control systems, investment and financing system to make it more responsive to the needs of both mergers and acquisitions, and to establish a unified Financial information platform, so that management can be faster, more accurate and more comprehensive access to all types of financial information in order to meet the needs of decision-making.

3.4.2 Integration of financial management

Financial management objective is the starting point and end point of financial working, its determination directly impact on the theory of the financial system, and will determine the choice of a variety of financial decision-making. Upon completion of mergers and acquisitions, firms should make a clear objective of financial management based on the financial side of target firms.

3.4.3 Integration of asset and liabilities

In M & A business, debt of bidders may increase because of taking over the acquisition's debt, or adopt financial method just as loans and bonds issue. If capital structure is irrational, and financial situation also become deterioration. So the balance of integration aiming at improving the financial situation and enhance the solvency of enterprises.

*3.5 To enhance the risk awareness of management of enterprise, establish and improve financial risk prediction and monitoring system*

To raise the risk awareness of management of the business will guard against financial risks of mergers and acquisitions from the source. In addition, establish its own enterprise financial risk prevention and control system within the enterprise, to strengthen business-to-risk M & A forecast is one of the key areas of the establishment of early warning mechanism for risk prevention system. M & A business as a better way with the unique advantages of the expansion of the scale, rapid market strategy, the socio-economic restructuring and resources optimization to become a topic of concern, the financial risk arising from the merger is also a deep wide range of people discussion of the field. As the market matures, I think M & A activity will be more thoroughly researched on mergers and acquisitions of financial risk issues will be further deepened, to achieve a real and practical application of theory to guide practice.

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# Study on the "Going-out" Business Mode of Chinese Enterprise

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**Abstract**

"Going-out" is an inevitable way for Chinese enterprises going abroad. Firstly this paper introduces the popular operations of world enterprises going out. Then, by analyzing some successful Chinese enterprises, this paper makes deep studies on certain enterprises. Finally, this paper summarizes four modes and puts forward a business mode that is right for most Chinese enterprises.

**Keywords:** Enterprise "going-out", International operation, Enterprise case, Business mode

Economic globalization is the dominant trend of the world today, which brings about significant commodity and production flows. No matter where it is one country or one region, they completely realize that all countries and regions must participate in the economic globalization in order to achieve fact economic development. Practices repetitively prove that the globalization brings about chances of fast development for developing countries. In 2007, the Seventeenth National Congress of the Communist Party of China definitely declares: "Insist on the primary policy of reform and opening-up; integrate 'bringing-in' with 'going-out' properly; enlarge opening-up fields, optimize opening-up structure, and improve opening-up quality; perfect the open economic system that emphasizes on mutual connections and interests, safety, and high efficiency; cultivate new advantages in global economic cooperation and competition under the economic globalization." An enterprise "going-out" firstly should select an appropriate business operation mode based on self characteristics. Then, guided by the mode, an enterprise can perform international operations.

What is "going-out"? It refers to a process of an enterprise stepping out of domestic market and entering world market. It includes foreign trade, foreign investment, export of labor service, and foreign contracting. What is "going-out" business mode? It refers to former successful experiences and operations of enterprises in international operations. Enterprises may copy or take references from these experiences and operations according to self characteristics. Experiences and operations are different for enterprises. We can summarize some modes for later references. Here, we probe into the "going-out" mode of some successful enterprises in China.

## 1. The popular mode of an enterprise entering the world market

### 1.1 The export trade mode

The export trade mode is a traditional way for an enterprise entering world market, and also a junior method for an enterprise exploring world market. This mode includes these specific methods as follow.

(1) Direct export. (2) Indirect export. (3) Order production.

### 1.2 The foreign Direct Investment (non-capital) operational mode

Foreign direct investment means enterprises enter world market by directly investing in other countries and establishing enterprises overseas. This mode includes these specific methods as follow.

(1) Form child enterprises in foreign countries. (2) Cooperative business. (3) Overseas sell. (4) Build up enterprises overseas.

### 1.3 The capital operation mode

The capital operation means an enterprise explores foreign market by acquiring foreign enterprises' large proportion of shares based on its advantages in capitals, brands, and technologies. This mode includes specific methods as follow.

(1) Overseas listing. (2) Merge and purchase foreign enterprises. (3) Form joint enterprises.

## 2. Successful cases of Chinese enterprises "going-out" business mode

Since the execution of reform and opening-up policy, Chinese enterprises explore proper successful ways for

transnational operations gradually. Although specific way is different, most follow or adopt the primary international business mode more or less. In order to summarize experiences and find out the law, we firstly sum up the international business modes adopted by Chinese enterprises.

*2.1 The international business mode of TCL*

TCL is founded in 1981. After establishing its position in domestic market, it begins to export products in 1985. In early 1999, TCL takes the first step toward international operations. It invests one hundred million RMB in Vietnam and builds a production enterprise. Soon after, it secures its position in market and the market share reaches 12%. Afterwards, TCL begins to expand toward countries around Vietnam ------ other Southeast Asia countries. It builds up production basis in Indonesia, Malaysia, and other ASEAN (Association of South East Asian Nations) countries. After achieving success in the basis, TCL merges a brand enterprise of developed country in 2002. It purchases Schneider Electric, a hundred- year Germany enterprise, at a price of 8.2 million Euro and successfully makes best use of its brand, production equipments, R&D institutions, and marketing channels, completing the signalized step of mature transnational enterprise toward transnational capital operation. (Source: TCL website)

The success of TCL is based on three steps. Firstly, it establishes its position in domestic market. After possessing the brand competitiveness and business strengths, it exports products. Secondly, it produces products in or exports products to developing countries and regions where the production and technology lagged behind. Thirdly, as it possesses enough capitals, it performs enterprise merger and purchase, what is in accordance with mature transnational enterprise's business strategy. Before this stage, TCL has already accomplished multiple operations successfully in domestic market, what establishes firm basis for realizing multi-brand strategy. When Mr. Dong Li, the director of the board, evaluates the Europe purchase strategy, he said: "Schneider Electric can provide us with a complete set of services in European information, retail, and supply by its influences and strengths. It is faster than us promoting the brand by ourselves."

The international business mode of TCL is displayed in Figure 1 as follow.

*2.2 The international business mode of Skyworth Group*

Skyworth Group enters the color TV industry in 1991. From 1995 to 1998, it exports the largest amount of color TV to 85 countries and regions, and builds up distribution relationship with more than 3000 overseas distributors and retailers, forming an international marketing net. In 1999, Skyworth Group sets up a laboratory in Silicon Valley, USA. In Aug. 1999, it gets 30 million Dollar investment from Europe ING Group, Switzerland Value Partner Group, and American Walton International Investment Group (China Funds), which accounts for 15% of capital stock. As the shareholders of Skyworth Group, the three groups offer technological information to support its international operations periodically. Afterwards, Skyworth Group builds up TV production bases in Mexico and Malaysia, and sets up technology research center, what serve as important preconditions for large-scale transnational merge and purchase. In Apr. 2000, Skyworth Digital Holding Limited goes public in Hongkong and collects hundreds of millions of Hongkong dollars. (Source: Skyworth Group website)

The international business mode of Skyworth Group is displayed in Figure 2 as follow.

*2.3 The international business mode of Lenovo*

The Lenovo Group is founded in 1984. After accomplishing initial accumulation, in Apr. 1988 it combines with the Institute of Computer of China Academy of Sciences and Hongkong DAW Computer Systems Limited, and creates the Hongkong Legend Computer Limited Company. In 1988, it realizes the sales of 120 million Konghong dollars. In Apr. 1989, it founds the Legend Group and establishes the international business strategy, starting to explore the world market actively. Since 1990, it sets up branches or offices in Los Angeles of America, German, and Singapore. In Feb. 1994, Hongkong Legend Holding Limited Company goes public in Hongkong. At the same year, it sets up the R&D base in Silicon Valley of America. The international business of Lenovo follows three procedures. Firstly, it founds a trade company overseas. Secondly, it sets up a research-production-sale integrated transnational company. Lenovo has basically accomplished the two procedures in 1994 and pursues for further development. Thirdly, it enlarges its scale and grows into a world large transnational company. In May 2005, it purchases the personal computer branch of IBM. In 2004, it becomes the first Chinese company that cooperates with the International Olympic Committee. The Lenovo Group has offered computers, computing technology facilities, and funds exclusively for the 2006 Winter Olympics and the 2008 Beijing Olympics. (Source: Lenovo Group website)

The international business mode of Lenovo Group is displayed in Figure 3 as follow.

*2.4 The international business mode of Zhejiang private SME (small and medium-sized enterprise)*

Since the execution of reform and opening-up policy, Zhejiang private SMEs have achieved fast development. Some workshops and village clusters at the very beginning gradually develop into specialized industrial enterprise clusters centered on towns and cities, such as Yongkang hardware, and Wenzhou lighter, and other small electric facility and commodity market clusters. These regional markets gradually evolve into an international market. For example,

Wal-mart, Carrefour, and some world well-known companies make purchases in Zhejiang market. There are hundreds of foreign permanent purchasing institutions. Everyday more than four and five thousand foreign business men purchase sorts of commodities here. However, Zhejiang people do not satisfy with the achievements. They look for greater opportunities overseas from these foreign business men. Especially for bosses of production enterprises and some distributors, they extend their market into East Europe, South America, Africa, and Southeast Asia step by step. One leader has said proudly: "Today, where there is human being, there are Zhejiang business men." (Source: Zhejiang SME website, etc.)

The international business mode of Zhejiang private SME is displayed in Figure 4 as follow.

**3. The analysis of Chinese enterprises' "going out" international business mode**

Although successful Chinese enterprises perform international business differently, they have some similarities more or less. In order to make deep analysis, we list some important measures of the four modes as follow.

See Table 1. It shows the measures adopted by Chinese enterprises in international operations.

According to this table, firstly all enterprises choose to perform export trade in international business. After possessing the base of export trade, they start to explore international distribution channels. Secondly, TCL and Lenovo Group develop quickly and timely in international business. Besides, they start at a higher level by cooperating with international enterprises. TCL and Lenovo Group set up overseas branches and distribution channels respectively in late 80s and early 90s. Thirdly, they go public overseas early and choose to purchase large and influential foreign enterprises. Fourthly, although Skyworth Group starts later than TCL and Lenovo Group in international operations, it has thousands of overseas partners in distribution. Finally, Zhejiang SME cluster stabilizes its competence in domestic market by rich products, high qualities, and low prices. It attracts amounts of overseas purchasers. Then it steps out of China and sets up specialized market abroad. By this way, it turns into a new mode of SME cluster international operations.

As for the similarities, all start from exports. During the process of exporting products, enterprises gradually familiarize with international transaction principles, and accumulate experiences. Afterwards, the three modes develop differently. TCL gives priority to explore markets in developing countries. It chooses to produce and sell its mature products in developing countries. Skyworth Group builds up distribution channels in international market and forms a marketing network. Lenovo Group sets up overseas branches and performs transnational merger and purchase, and realizes financing by listing.

As enterprises adopt these four modes, they should take products characteristics and their strengths into consideration, and the comparative advantages and competitive advantages should not be ignored. For example, TCL builds up enterprises in Southeast Asia, what is rightly in accordance with its product characteristics and the theory of product life cycle. In China, TV and some electric products tend to be saturated. But in some developing countries, the demand for TV is large. Southeast Asia countries are mostly at the developing stage. Therefore, many enterprises follow this mode, using China's mature products to win market shares in Southeast Asia countries, and achieve successes. This mode is right for most Chinese enterprises' "going out". Lots of Chinese enterprises succeed by this way, such as Luoyang Northern Ek Chor Motorcyle Co. Ltd. In mid 1990, it begins to export products to Southeast Asia countries. Then select proper areas to build up enterprises there. In 2002, it exports amounts of products to Japan (Source: Luoyang Northern Ek Chor Motorcycle Co. website). Afterwards, only when it operates as TCL in international business, can it turns into a greater and stronger transnational company.

Chinese enterprises can also take references from Skyworth Group in international operations. Due to the severe competition in domestic market, Skyworth Group starts cooperation with foreign distributors early. Till mid and late 90s, it has already developed cooperative relationships with more than 3000 foreign wholesalers and distributors. Recently, a popular saying in marketing field is that "the terminal controls". Skyworth Group can apply its "terminal" strategy early, what shows its foresight completely. Because Skyworth Group controls lots of distributors in international market, it can manage its business well in international operations. In contrast, some enterprises just depend on one or two trade companies in international operations. Once world economic situations change, these enterprises may face serious risks. In a sense, Skyworth Group masters its international operations. Both Xinfei Electric Appliance Company and Skyworth Group produce family electric appliances. The export strategy of Xinfei Electric Appliance Company is similar to that of Skyworth Group. In early 90s, Xinfei advances the three-step strategy for international operations. The first step is to "launch out by borrowing ships". The second step is to set up overseas offices. The third step is to build up enterprises abroad. In 1999, Xinfei cooperates with General Electric, one of world top 500 enterprises, and exports products to United States of America. In 2003, its exports reach the top, realizing the first step of the strategy. However, the second step is hard and does not achieve progresses. Xinfei exports products mostly by depending on trade companies or exports products indirectly. The amount of exports is huge, but the effect is worse. Recently, Xinfei recognizes its defects. It enhances its brand construction and begins to export products with self-owned brand. As a

result, Xinfei has already developed well in Mongolia, Nigeria, and other countries in Asia and Africa. Guided by the new business strategy, Xinfei Electric Appliance Company will achieve greater successes in future. (Source: Xinfei Electric Appliance website)

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Table 1. The measures adopted by Chinese enterprises in international operations

| | Export | Foreign direct investment | | | | Capital operation | | | other |
|---|---|---|---|---|---|---|---|---|---|
| | | Child company | Cooperative production | distribution | Build up companies | Overseas listing | Merger and purchase | Joint venture | |
| TCL | Late 80s | Hongkong child company in 1993 | Cooperate with Taiwan Rechi in 2001 | In charge of overseas sales in 1993 | Build up companies in Southeast Asia in 1999 | Go public in Hong kong in 1999 | Merge Hongkong Luks in 1996 | Joint venture with French Thompeon in 2003 | |
| Skyworth Group | Mid 90s | | | Cooperate with more than 3000 foreign distributors in 1998 | Set up a lab in Silicon Valley in 1999 | Go public in Hong kong in 2000 | | Gets investments from Europe ING Group and other groups in 1999 | |
| Lenovo | Late 80s | Set up Hongkong Legend Computer Limited Company in 1988 | | Set up branches in Los Angeles in 1990 | | Go public in Hong kong in 1994 | Purchase the personal computer branch of IBM in 2005 | | Partner of 2008 Beijing Olympics |
| Zhejiang SME | Purchasers come Zhejiang in late 80s | | | Set up specialized markets overseas in mid 90s | | | | | |

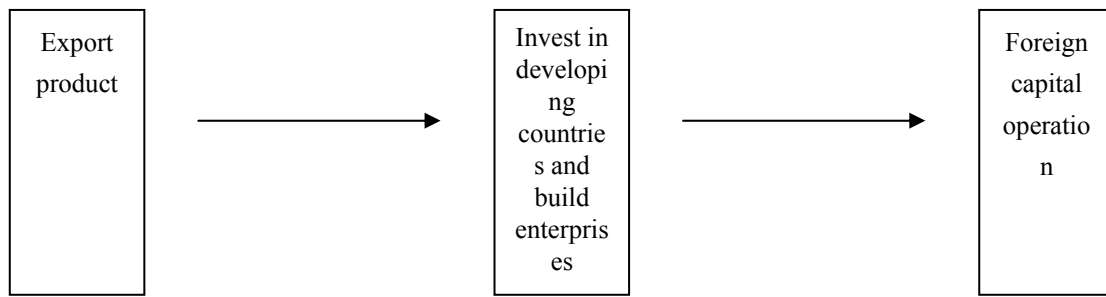Source: the websites of TCL, Skyworth Group, and Lenovo, and relevant journals

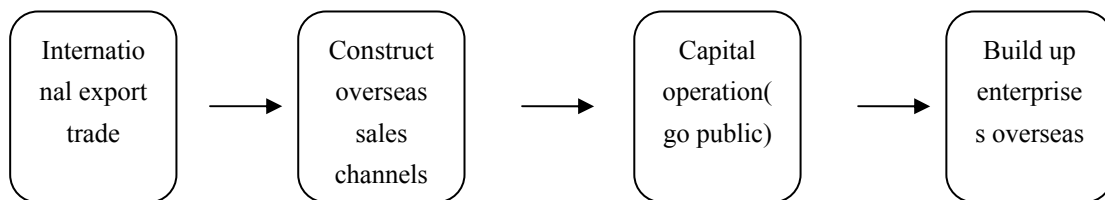Figure 1. The International Business Mode of TCL



Figure 2. The International Business Mode of Skyworth Group
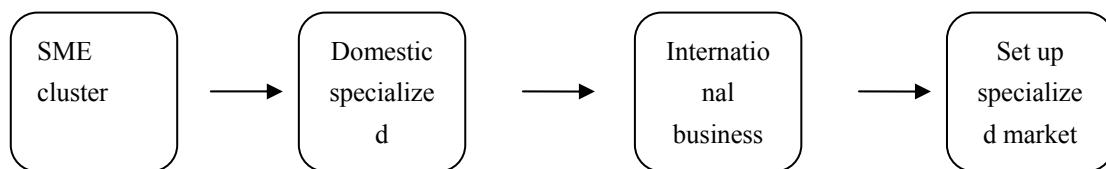


Figure 3. The International Business Mode of Lenovo



Figure 4. The International Business Mode of Zhejiang private SME

# Convergence of Accounting Standards:

# Internationalization of Accounting

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**Abstract**

Accounting has no meaning without standards due to professionalism. The use and application of standards in accounting gets so importance that it will not go wrong if it is termed as a legal discipline. By the time, the world has given accounting the certification of international discipline. So, it is apt to say that as an international discipline, accounting should have a single set of standards for all for harmonizing the practice in a global scenario. But the reality is that we still have various streams of accounting standards like US GAAP, UK GAAP, IAS, and so on. These different streams are the threat for accounting against its harmonization of practices. Though the world has witnessed a lot of initiatives taken to reduce the streams into one in recent years, still we cannot ensure the final sophistication in this regard. The paper focuses on the convergence issue, its current status, challenges with special reference to Indian perspective.

**Keywords:** International accounting standards (IAS), International financial reporting standards (IFRS), Generally accepted accounting principles (GAAP), Securities and exchange commission (SEC), International accounting standards committee (IASC), Convergence of accounting standards

## 1. The Prologue

Accounting Standards are the policy documents (authoritative statements of best accounting practice) issued by recognized expert accountancy bodies relating to various aspects of measurements, treatments and disclosures of accounting transactions and events, as related to the codification of Generally Accepted Accounting Principles (GAAP). These are stated to be the norms of accounting policies and practices by way of codes or guidelines to direct as to how the items, which make up the financial statements, should be dealt with in accounts and presented in the annual accounts. In fact, such statements are designed and prescribed to improve and benchmark the quality of financial reporting. They bring about uniformity in financial reporting and ensure consistency and comparability in the data published by enterprises. These are aimed at furnishing useful information to different users of the financial statements, such as shareholders, creditors, lenders, management, investors, suppliers, competitors, researchers, regulatory bodies and society at large.

Along with the process of globalization, the awareness of capital markets has increased manifold and the size of investors is multiplying. Foreign institution investors (FIIs) are investing in significant volume globally, as also are several Indian companies through GDRs (Global Depository Receipts) and ADRs (American Depository Receipts). The

television brings into our drawing rooms online movements of share prices across the world. Hence, the need for convergence of accounting standards has been strongly advocated globally in order to faster the decision-making process.

In this context, the statement of Harvey Pitt, US SEC Chairman at SEC Conference, (2002) is worth mentioning, "High quality global accounting standards are needed to improve the ability of investors to make informed financial decisions. Companies must keep pace with this progress in order to promote and protect their business credibility in the international market place."

Jules W. Muis, at the World Bank Conference in 1999 spoke "….power to control the language of business is important. Standard-setters will come to a head as the world grows smaller, and economic independence is no longer an option but a reality. So it happens that today a good observer can see the battle preparations for the control of the international language of business slowly unfold…"

It is for this reason the convergence of standards in accounting are so important. The process of convergence is accepted as the key factor to implement a single set of accounting standards across the globe.

## 2. Objectives of the study

Under this milieu, the present paper seeks to discuss the followings:

• The relevance of global convergence of Accounting Standards,

• The origin and history of IASC

• The fast facts in the process of convergence,

• The present global scenario on convergence,

• To understand the issues and challenges relating to the convergence, &

• The present status of Accounting Standards in India.

## 3. Relevance of global convergence of accounting standards

There are several standard setting bodies and organizations that are now actively involved in the process of convergence of accounting standards. There are some rationales behind that.

Firstly, the rapid growth of international trade and internationalization of firms, the developments of new communication technologies, and the emergence of international competitive forces is perturbing the financial environment largely. Under this global business scenario, the residents of the business community are badly in need of a common accounting language that should be spoken by all of them across the globe. A financial reporting system of global standard is a prerequisite for attracting foreign as well as present and prospective investors at home alike that should be achieved through convergence of accounting standards (Hati and Rakshit, 2002).

ICAI president K. S. Vikamsey (2001) is of opinion that 'People who invest overseas naturally want to be able to keep track of the financial health of the securities issuers. Convergence of accounting standards is the only means to achieve this. Only by talking the same language one can understand each other across borders.'

Secondly, on many stock exchanges, currently, foreign listings are a large percentage of total listings (http://www.fibv.com). As per ICAI estimates, 20% of total listing on New York Stock Exchange (NYSE) is of foreign origin. In case of London Stock Exchange, this is 16% and in Luxembourg, the percentage is 82%. On 12 March 2002, the European Parliament voted overwhelmingly in favor of the EU Commission's proposal that all EU listed companies must follow standards issued by the International Accounting Standards Board (IASB) in their consolidated financial statements starting no later than 2005. Over 7,000 EU listed companies are directly affected by this proposal (Samir, 2003).

Thirdly, divergence in accounting standards not only means additional cost of financial reporting but also causes difficulties to multinational groups in the manner in which they undertake transactions. It is quite possible for a transaction to give rise to a profit under one accounting standard, whereas it may require a deferral under another standard. When a multinational company (MNC) has to report under the standards of both of the countries it might lead to some extremely odd results. For instance,

*Daimler Benz, who was the first German to secure stock market listing in the United States, reported a net profit of DM 158m for the six months to June 1998 based on German GAAP. The U.S GAAP reconciliation statement revealed that the company had incurred a loss of DM. 949m. Similarly, British Telecom Inc. reported a net profit of £1767 for the year ended 31-3-1994 under the UK GAAP but under the US GAAP reconciliation, the net profit reduced to £1476.*

Fourthly, convergence is not an end by itself, but it is a means to an end. Adoption of different accounting standards causes difficulties in making relative evaluation of performance of companies. This phenomenon hinders the valuation and consequently the decision making process. There are numerous instances in India and around the world of bad

accounting practices leading to corporate failures. Corporations wish non-recurrence of another Enron and like.

Another significant benefit that is expected to accrue from global convergence of accounting standards relates to facilitating cross–boarder mergers and acquisitions. Last though not the least, it improves the quality of financial reporting throughout the globe.

## 4. International Accounting Standard Committee (IASC): Origin and History

The concept of convergence of accounting standards relates back to 19th century when the idea of "International Accounting Standards" was germinated in the first International Congress of Accountants held at St. Louis in 1904. Again in 1957, when 7th International Congress of Accountants held in Amsterdam, Mr. Jacobkraayenhof, spoke on the need of international accounting cooperation and standardization. Latter in 1966, discussions were made among the various professional bodies like the Institute of Chartered Accountants of England and Wales, Canadian Institute of Chartered Accountants and Association of the Institute of Certified Public Accountants of America. The discussions were led by Sir Henry Benson, the then President of the Institute of Chartered Accountants of England and Wales and ultimately a study group was formed to conduct comparative studies on the accounting thoughts and practices among participating countries. It conducted about twenty studies on accounting and auditing topics during its eleven years lifetime. Ultimately, the senior officers of the study group decided to establish international standards. The meeting was held in 1972, and in the 10th International Congress of Accountants at Sydney, the International Coordination Committee for Accounting Profession (ICCAP) was formed to lay the groundwork for the establishment of a formal organization for the International Accounting Standards. The International Accounting Standards Committee (IASC), now International Accounting Standards Board (IASB) came into existence as a result of an agreement by 16 accounting bodies representing 9 nations, i.e., Canada, Australia, France, Japan, Germany, Mexico, Netherlands, United Kingdom and the United States of America on 29th June 1973, with its secretariat and head quarters at London (http://www.iasplus.com).

At present IASC has 153 accounting bodies representing 112 countries. It has so far issued 41 standards. Barring Canada, Japan and the US, all countries have accepted these standards.

## 5. Fast Facts in the Process of Convergence

The International Accounting Standards Committee (IASC), constituted in 1973 has passed through many phases of its journey to come to this present stage. It is felt pertinent to discuss all these here briefly for the knowledge of our esteemed readers.

In the year 1995, IASC entered into an agreement with International Organization on Securities Commission (IOSCO) on a mission to complete "comprehensive core set of Standards" that could be used for cross-boarder and national listings. In fact, this was due to growing recognition of the need for global accounting standards.

To give proper direction on how to interpret these standards led to the setting up of the Standards Interpretations Committee (SIC) in 1997.

In December 1999, the board of the International Accounting Standards Committee has approved proposal to make changes in the structure of the committee with a view to achieve global convergence.

On May 2000, one most important breakthrough was reached when the International Organization on Securities Commission (IOSCO) accepted 30 core International Accounting Standards. This backing by IOSCO for the use of International Accounting Standards by member stock exchanges led to the acceptance and recognition of the International Accounting Standards Committee (IASC) as a worldwide standard setter. Further, it was followed by the reformation of IASC to International Accounting Standards Board (IASB) in 2001. Consequently, IAS is now renamed as International Financial Reporting Standards (IFRS), have brought into limelight. Consequently, in the same year the US Securities and Exchange Commission (SEC) suggested the acceptance of IAS for use in cross-border listings in the US, without reconciliation to results under the US-GAAP (Madan, 2002).

In 2001, the international fraternity of accountants took stock of the situation and constituted the International Accounting Standards Board (IASB) to evolve and prescribe norms for treatment of several items in the preparation and presentation of financial statements. IASB adopted all the 41 standards issued by the IASC till 2001. These standards were thoroughly revised and updated in view of the changes in industry and the need for rationalization.

In October 2002, a Memorandum of Understanding (MOU) was signed between the IASB and the FASB, the two major players in the accounting standards arena, which is well known as Norwalk agreement. The two grand bodies agreed to put their best efforts to make their financial reporting standards fully compatible. The Norwalk agreement was welcomed throughout the accounting circles including the Securities and Exchange Commission (SEC).

The International Financial Reporting Interpretations Committee (IFRIC) was constituted to replace the SIC. This committee meets periodically to discuss and spell out their interpretations. It deals with matured as well as emerging issues. The former are those covered by existing standards but not satisfactorily practiced, and the latter are new topics

relating to an existing IAS but not considered while developing the standard.

The last milestone in the process of convergence was done on 12 March 2002, when the European Parliament voted overwhelmingly in favor of the EU Commission's proposal that all EU listed companies must follow standards issued by the International Accounting Standards Board in their consolidated financial statements starting no later than 2005. This put an "end to the current Tower of Babel in financial reporting". This decision also seems to have placed IAS firmly in the driver's seat as the eventual global standard. Canada, Australia, and a number of other countries have announced intention to adopt IAS. United States, which has shown a preference for maintaining its independent standards setting body for a pretty longer period, is evidencing interest in convergence of accounting standards.

## 6. Present Global Scenario on Convergence

The countdowns to the convergence of national and international accounting standards and an improvement in the quality of financial reporting at a global level are best tracked chronologically.

The current world scenario on the subject of convergence gets going on 12 March 2002, when the EU Commission directed all European companies trading in the European Securities Market to adopt IAS in 2005, and all non- European companies (following US GAPP or any other standards) up to 2007.

In June 2004, the Australian Accounting Standards Board (AASB) had issued standards and interpretations that all accounting standards of Australia that are equivalent to International Financial Reporting Standards (A IFRS) must be adopted from 2005 in their country.

Many countries like Korea, Barbados, Trinidad and Tobago, Zimbabwe, Mongolia, Malta, and Uganda are adopting IAS. The information about accounting principles applicable in Syria and Tunisia indicates that they are similar to international accounting standards. At present, all companies and banks in Russia are required to prepare their financial statements in accordance with IAS.

New Zealand's Accounting Standards Review Board (ASRB) and Financial Reporting Standards Board (NZ FRSB) have adopted 36 new accounting standards and 12 interpretations in January 2005. And these formed New Zealand's equivalent of the International Financial Reporting Standards (NZ IFRS). It is going to implement IASB standards with effect from 1st January 2007.

Hong Kong is an important international financial hub. Its stock market ranks second largest in Asia and eight largest in the world in terms of market capitalization. The Hong Kong Institute of Certified Public Accountants (HKICPA), the standard setting body of Hong Kong has been pursing the policy of aligning its standards with IAS since the early 1990s. Most recently, HKICPA has further committed time and resources to support convergence.

Philippines have also adopted national standards that are identical to IFRS from 2005. Singapore has adopted many accounting standards from IFRS that essentially word for word. Now these are known as Singapore's equivalents of IFRS (S IFRS).

Japan, the major player in the global capital market and the second largest capital market in the world, is a strong supporter of IASB. The Japanese Institute of Certified Public Accountants is now working in collaboration with the IASB to make the Japanese standards essentially equivalent to international standards. Japan too has undertaken a joint project in collaboration with IASB to remove the differences between Japanese Accounting Standards (JAS) and IFRS by January 2005.

The Canadian Accounting Standard Board (CASB) has also announced its intention to adopt International Financial Reporting Standards (IFRS) in five years. Canada's decision to adopt IFRS means that out of original G4 nations, US is the only member that has not gone over to international standards.

In Egypt, Egyptian Accounting standards have prepared to comply with international accounting standards except for certain minor differences to adopt Egyptian economic environment. Therefore, all companies listed in the Cairo Stock Exchanges must follow IAS. Kuwait adopted IAS as its national standards. Therefore, all Kuwaiti companies are following IAS for the purpose of listing. All companies in Jordan, both domestic and foreign, listed in the Amman Stock Exchange must follow IAS. However, in Turkey, foreign companies may follow any one out of three standards, such as, International Accounting Standards, UK GAAP and US GAPP for listing in Istanbul Stock Exchange.

In the Middle East, most of the countries have welcomed the International Accounting Standards. For cases in point, Bahrain, Qatar, Lebanon, and Oman are considering IAS as the replacement to their domestic standards. Of course, Iran and Israel had shown reluctance for the use of International Accounting Standards. In Iran, all companies to be listed in Iranian Stock exchange must have to follow Iranian accounting principles. Similarly all companies must have to follow Iranian accounting principles, if they want to be listed in Tel Alive Stock exchange.

On January 1, 2007, more than 1,100 Chinese companies switched to new accounting standards that brought their books in line with international norms. From next year, the companies will have to apply a new set of 38 standards, under the

China Accounting Standards System, that are basically in line with IASB (International Accounting Standards Board) norms. But, there is far more at stake than improving accounting practices at China's listed firms. Chinese companies are increasingly looking overseas for funds and acquisitions. Adopting international standards will make this easier by increasing their transparency and credibility.

From above deliberations, it can be believed at this moment that, the IOSCO's endorsement of the IASC standards has paved the way for unification of accounting standards globally and emergence of the true artificial language designed for global use in the field of accounting (Srkant, 2005). Today the world of accounting feels that International Accounting Standards should be that language, as it is the only set of standards that has been prepared through wide international consultations and participations.

## 7. What will happen if USA does not adopt IAS?

Now it is realized that, barring very few, almost all countries of the world are interested to follow IAS as their accounting standards. USA is the only main country reluctant to adopt it. Now question arises what will happen if super-power of the world and a highly developed economy like USA does not adopt IAS?

Executive search firm, Russell Reynolds' survey of chairmen across 145 European companies has found: (a) over half the chairmen of companies with US listings said they would consider de-listing because of Sarbanes-Oxley, in spite of the difficulties in taking shares off the US exchanges; (b) 70% of those heading companies not yet listed in the US said Sarbanes-Oxley would dissuade them from seeking a US listing.

With the relatively tighter regulation in the US, several large companies are understood to be evaluating other capital markets that accept IFRS (Memani, 2006). While such situations provide an opportunity for IFRS to flourish, it would still be inappropriate to stay limited to that perspective. This is because IFRS stands a fair chance on its own, with its acceptance by EU, and also given the fact that many countries have traditionally followed IFRS or IFRS-inspired national accounting standards.

## 8. Issues and challenges in adopting global accounting standards

In spite of all, achieving global convergence in accounting standards is not an easy task. There are a number of issues to overcome.

First of all, there seems to be a reluctance to adopt the International Accounting Standards Committee (IASC) norms in the US. This is definitely a problem. The US is the largest market and it is important for IASC standards to be harmonized with those prevailing there. The US lobby is strong, and they have formed the G4 nations, with the UK, Canada, and Australia (with New Zealand) as the other members. IASC merely enjoys observer status in the meetings of the G4, and cannot vote. Even when the standards are only slightly different, the US accounting body treats them as a big difference, the idea being to show that their standards are the best. However, except US all other members of G4 has adopted the IAS more or less to some extent.

Second, accounting standards have been developed in different countries under different legal, economic, social and cultural environments. For this reason there exists such diversity in accounting standards among the countries through the globe. If convergence is to be achieved, it is first necessary to arrive at an agreement as to the central objective of financial reporting. The IASB standards are oriented to serve the needs of investors and capital markets. Countries that have a different financial reporting philosophy would find it extremely difficult to converge their domestic standards with International Financial Reporting Standards.

Third, the quality of financial reporting depends on the quality of accounting standards as well as the effectiveness of the process by which those standards are implemented. Adequate regulatory and other supports are necessary to ensure proper implementation of standards. Implementation of accounting standards is not an easy task. In spite of convergence, there is no assurance that they will be implemented with same amount of vigor in every jurisdiction.

Last, convergence of accounting standards with international approach will inevitably raise the questions of rules versus principles. IASB standards are principles-based. Thus the countries that have rules-based standards are expected to experience considerable difficulty in converging their standards with IFRS.

There are challenges that IASB and nations adopting IFRS need to address in the coming days. One big challenge for countries adopting IFRS is the shortage of resources and more particularly, IFRS-trained resources. For case in point, with just six months to go before China's listed companies adopt IFRS, demand for accountants is rising and could run into millions in the coming years, if the new standards are rolled out for all of the country's companies and not just the listed ones.

Accountants say that the challenge for China, as it scrambles to meet the accounting shift deadline, will lie in getting its over-1,100 listed companies to establish the appropriate financial reporting systems and in training enough qualified accountants by January. The risk is that some of these companies may fail to make the transition on time. Estimates reveal that China has a shortfall of 300,000 qualified accountants and is likely to require a further three million over the

coming years to keep pace with its current rate of economic growth.

## 9. The Current Status of IAS (Indian Accounting Standards)

India is a member of IASC. The Institute of Chartered Accountants of India (ICAI), the apex body of accounting and auditing, constituted an Accounting Standards Board (ASB) on April 21, 1977, to pronounce standards on various items of the financial statements. The current Indian accounting standards are of good quality in most instances and in fact, are practically the same as IASs. The statutory audit was the only enforcement mechanism till 1999. It was in 1999 when the Government of India constituted the National Advisory Committee on Accounting Standards (NACAS), an advisory body on accounting standards by inserting Section 210A in the Companies (Amendment) Act 1999. So far, the NACAS has advised the adoption of 27 accounting standards developed by ASB.

In support of its commitment to adopt IAS; the ASB is examining the various standards revised by IASB to initiate revision in its corresponding. This Board has been releasing standards from time to time. Certain of the standards have also been revised/deleted/curtailed in the light of new and additional standards as well as the experience of the industry. Moreover, the Board has also prepared a comparative statement listing the IAS with corresponding Indian Accounting Standards, and also the standards which are irrelevant in the context of present economic and business scenario (Chowdhury, 2000). Till now, 29 Accounting Standards have been issued by the ICAI as against the 41 International Accounting Standards. There are also five International Financial Reporting Standards (IFRS).

In India, since the ASB is not yet functional, the accounting standards as pronounced by the ICAI are adaptable by every entity whose financial statements are subject to audit.

## 10. Grounds of Diversity between Indian Accounting Standards and IAS

India is slowly entering into the arena of accounting standards. But the progress of formulation of accounting standards has been very slow as compared with the developments at international levels. However, some of the accounting standards in India conform to the International Accounting Standards. Still there are significant variations between these two. Efforts are on to counterpart Indian accounting standards with the IAS. A study of their variations would be crucial for bridging the gaps (Reddy, 2000).

For India, the multiplicity of standard setters leads to delay and lack of direction. The increased complexity of the fair valuation models as prescribed by international standards requires extensive valuation/objective professional judgments, integrity and uniformity of approach, which may not be easily achievable across all countries—particularly in the emerging economies like India.

It may be noted that in several important areas, when the Indian Standards are implemented, the accounting treatment in these areas could lead to differences in the restatement of accounts in accordance with IAS. Some of these areas include: a) Consolidated financial statements, b) Accounting for income taxes, c) Financial Instruments and d) Intangible Assets.

Another reason for the prevailing divergent accounting practices in the Indian Accounting Standards is the provisions of the Income Tax Act 1961 and Indian Companies Act 1956. They do not go together. Sometimes, the prescriptions are contradictory on a similar issue.

### 10.1 Company law and Accounting Standards

In India, though accounting standards setting is presently being done by ICAI, one could discern a tentative and halfhearted foray by company legislation in to the making of accounting rules of Measurement and reporting. This action by itself is not the sore point but the failure to keep pace with the changes and simultaneously not allowing scope for someone else to do it is disturbing.

A study of the requirement of company law regarding the financial statements reveal several lacunae like earning per share, information about future cash flows, consolidation, mergers, acquisitions etc.

### 10.2 Income Tax Act and Accounting Standards

The Income Tax Act does not recognize the accounting standards for most of the items while computing income under the head "Profits & Gains of Business or Profession". Section 145(2) of the I. T. Act has empowered the Central Government to prescribe accounting standards. The standards prescribed so far constitute a rehash of the related accounting standards prescribed by ICAI for corporate accounting. On a close scrutiny of these standards one is left wondering about the purpose and value of this effort. Examples are application of prudence substance over form, adherence to principles of going concern etc.

### 10.3 Other regulations and accounting standards

In respect of banks, financial institutions, and finance companies the Reserve Bank of India (RBI) pronounces policies among others, revenue recognition, provisioning and assets classifications.

Similarly the Foreign Exchange Dealers Association (FEDAI) provides guidelines regarding accounting for foreign

exchange transactions. Since the Securities & Exchange Board of India (SEBI) is an important regulatory body it would also like to have its own accounting standards and in fact, it has started the process by notifying cash flow reporting format. It is also in the process of issuing a standard on the accounting policies for mutual funds. It appears as if several authorities in India are keen to have a say in the matter of framing accounting rules of measurement and reporting. The tentative and half-hearted legal and regulatory intervention in accounting in India has come in the way of development of robust, continuously evolving and dynamic accounting theory and standards (http://www.icai.org). In spite of this, India's adoption of IAS is inevitable. When the whole world is adopting one language, it will be simply impossible on the part of India to hold it out for a too long period.

## 11. The Finale

A sound, unbiased, and transparent financial accounting and reporting thereof is a critical underpinning of our highly participative and complex capital markets, our economic well-being, and our way of life. Prevailing laws of the land significantly contribute to the variances between accounting standards of one country with the other. As we know that it is an age of globalization, there is no conceptual boundary among the nations. Thus, the attainment of a single set of accounting and reporting standards is the demand of the time. We will fall behind if this convergence process takes more time.

The vision of convergence in accounting world may inspire many minds but in the practical field it is a very formidable task. Many of the initial hurdles have been overcome and much progress towards convergence of accounting principles and procedures among countries has already been achieved. Convergence initiatives are now working much more effectively than ever before. Differences are still there but they are narrowing. It is expected that the pace of progress in the sphere of convergence will accelerate further in the coming years. In Indian perspective, it will continue to adopt IASs/IFRSs in the near future with few modifications to cater to the requirements of local climate.

Now, it is increasingly felt that IASs/IFRSs would be the right choice for a single global standard, since it has been prepared with much considerations and consultations. Bearing in mind the pace of the current global development on convergence, substantial convergence is targeted for 2009 across global capital markets.

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# Relationship between Organizational Citizenship Behavior & Counterproductive Work Behavior in the Geographical Context of Pakistan

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**Abstract**

The study is focused on measuring Organizational Citizenship Behavior (OCB) and Counterproductive Behavior (CWB) in the Corporate Sector of Pakistan. Also this study focuses on measuring the relationship between the prior mentioned behaviors. As per previous studies we have hypothesized a converse relationship between the Counterproductive Behavior (CWB) and Organizational Citizenship Behavior (OCB). Results prove CWB has significant negative relationship with OCB. This study is being carried out to invoke Organizational Citizenship Behavior (OCB) along with reduction in CWB in Pakistani organizations.

**Keywords:** Organizational Citizenship Behavior (OCB), Counterproductive Work Behavior (CWB), Performance, Pakistan

## 1. Introduction

Performance is one of major concern in every organization; one may say that performance improvement is a super objective amongst any organization's objectives. There may be two areas related to performance in an organization, firstly Organizational Citizenship Behavior (OCB) and secondly Counterproductive Work Behavior (CWB). Many researchers have taken CWB and OCB as separate constructs but Kelloway et al, (2002) argue that these two dimensions simply reflect the opposite ends of the same continuum, namely Role Performance within the Organization; which means the concept of treating CWB and OCB as related, is fairly infant. Among these prior mentioned behaviors the former is constructive and plays its role in the development of organization, where as the latter leads to the decline of the organization; as the name suggests – it results in negative performance and not in positive or even no performance.

Turnipseed & Rassuli (2005) define OCB as defending the organization when it is criticized or urging peers to invest in the organization; which means that OCB is 'going beyond the call of duty'. Theoretically, OCB typically refers to behaviors that positively impact the organization or its members (Poncheri, 2006), and can also be defined as per Joirman et al, (2006) a behavior that exceeds the routine expectations. This behavior may be different for different people as every employee in an organization perceives job requirements differently i.e. for some employees, helping others (Altruism) may be a routine, yet still, some will count it as beyond the scope of job requisites. A person who engages in OCB might receive appreciation and recognition that includes positive emotion and a greater likelihood of repeating the OCB (Miles et al, 2002).

CPBs (*Counter Productive Behaviors*) represent a class of behaviors that are discretionary. That is, individuals make conscious choices about whether to engage in behaviors such as playing mean pranks, swearing at coworkers, falsifying expense reports, and sabotaging the work of others (Mount et al, 2006). Interestingly there exists no difference of opinion among the researchers, regarding the relationship between OCB and CWB are concerned. Counterproductive Work Behavior (CWB) can be defined as a conduct that is averse to OCB, as per the findings of Spector and Fox (2002) OCB and CWB have opposite directions. Also the findings of Dalal (2005) purports; the relationships between an OCB facet and a CWB facet were also in the low to modestly negative range. The strength of facet relationships did not increase appreciably when OCB and CWB facets under consideration were directed toward the same target; which

means that CWB is any behavior that will result in conflicting outcomes discussed in case of OCB. Moreover, correlational analyses revealed a moderate negative relationship between aggregate OCB and aggregate CWB (–.39, corrected for error of measurement), supporting the notion that OCB and CWB, although negatively correlated, are distinct constructs (Sackett, 2006).

The reason for choosing the current constructs for research purpose is their straight impact on performance, as study on these behaviors may lead to the reasons for poor performance which sequentially will make possible for us to weed out those reasons or rectify them in order to achieve required outcomes. Also this area lacks some considerable attention as not much work is done in this field, and if at all some work is done, it has been in different geographical context and not in presently chosen region i.e. Pakistan. The study is conducted in the public sector companies in Pakistan. The reason of selecting this sector is that; we observed that both constructs i.e. OCB & CWB existed among the employees of the prior stated sector. The top management is very much satisfied due to high salary packages, good incentives and higher growth opportunities, but many amongst the blue collars (field workers) are not satisfied, due to hefty job hassles; this dissatisfaction is conveyed in the form of Counterproductive Work Behavior. So there is a need to address this issue and it is expected that this research will serve as a step in addressing this matter and will ultimately lead in the diagnosis and solution of the underlying problems.

## 2. Literature review

### 2.1 Organizational Citizenship Behavior (OCB)

Jacqueline et al, (2004) suggests that, individuals engage in OCB as a form of reciprocity based on organizational treatment. Also the study of Turnipseed & Rassuli (2005) depicted that, the 'best' performing workers produced the strongest link between performance and functional participation, which is a helping-type (*Altruism*) OCB. Also Todd (2003) maintains that, OCB should have a particular impact on the overall effectiveness of organizations by adding to the social framework of the work environment. Employee attitudes were found to influence subsequent organizational citizenship. Indeed, as citizenship appears to consist of discretionary behaviors, how the employee perceives the organization (as evidenced by his/her attitude toward it) would likely predispose this employee to either perform or withhold such performance (Dick et al, 2006). Results indicate that perceptions of citizenship performance predict overall performance equally well across all task performance levels (Coole, 2003). As per Jacqueline et al, (2004), it is any behavior not officially required by the organization; rather its practice depends solely on the consent of employee as a consequence of the organizational environment. Deckop et al, (1999) argues in his study that, for employees low in value commitment, a pay-for-performance system appears to be a disincentive for engaging in OCB. Niehoff & Yen (2004) asserts that, the belief among theorists is that as more employees engage in OCB, the organization becomes more successful. Such behavior (*i.e. Organizational Citizenship Behavior*) might enhance coworkers' or supervisors' productivity, help coordinate activities, increase the stability of organizational performance, and help the organization attract and retain employees (Borman, 2004). Gautam et al, (2005) maintains that citizenship behavior within an organization may vary, with change in geographic context i.e. OCB is enacted differently in different cultural contexts – that what it means to be a 'good citizen' may vary. OCB is a function of how employees define in-role and extra-role job behavior (Morrison, 1994); i.e. which jobs, employees perceive as their duty and what beyond it. As per MacKenzie et al, (1993) findings, assuming that OCB prove to be helpful to the organization; managers must consider what they can do to foster them. After all prior discussed arguments there also exists a view regarding OCB i.e. OCB is an extra-role behavior that is not formally evaluated (Pond et al, 1997). This view is also shared by Diapola, Tarter & Hoy, (2004) as their study proves that, Organizational Citizenship is discretionary; such behavior is its own reward; which means that it's up to the employees whether or not they want to indulge themselves in Organizational Citizenship Behavior.

### 2.2 Counterproductive Work Behavior (CWB)

In order to understand the concept of CWB, the comparative statement of Dalal (2005), on CWB against OCB could be taken into account i.e. OCB and CWB could be considered opposites in the sense that the former benefits the organization, whereas the latter harms it. The findings of Baker (2005) yield a supporting platform for the prior argument i.e. OCB and CWB (*Counterproductive Work Behavior*) were significantly negatively correlated; which means that a person high on OCB scale will not demonstrate any such behavior posing an adverse consequence to production and will perform for the promotion of the organization. The study of Sackett et al, (2006) yield that, Although aggregate OCB was predicted by Agreeableness, Openness, Extraversion, and Conscientiousness, aggregate CWB had modest and negative relationships with Openness and Extraversion, and was strongly negatively predicted by Conscientiousness, Emotional Stability, and Agreeableness. As per Miles et al, (2002) Negative perceptions of work environment relate to negative emotions, which are positively correlated with the occurrence of CWB. Spector & Fox (2002) also seconds the prior discussed view i.e. Negative emotions are associated with CWB, whereas positive emotions are associated with OCB. Situations seen by people as unfair are stressors that may lead to negative emotions and presumably to subsequent strains beyond CWB (Fox, Spector & Miles, 2001). Also, the findings suggest, for

instance, that the successful elimination of high-CWB employees during the applicant screening process may not, in and of itself, simultaneously achieve the successful selection of high-OCB employees (Dalal, 2005). Throwing together production deviance, sabotage, theft, and withdrawal may give the false impression that all four forms of CWB relate to the same stressors and strains (Spector et al, 2006); which means that different stressors yield different counterproductive work behaviors. Also CWB is typically hidden and is committed by individuals at their own discretion (Spector & Fox, 2002). In general, organizational stressors (such as constraints and injustice) were more closely associated with organizational than personal types of CWB, and interpersonal conflict was more closely associated with personal than organizational CWB (Fox, Spector & Miles, 2001). The research by Posthuma et al, (2005) yields that, marginal temps (*i.e. Temporary Workers*) had lower job performance, and exhibited more counterproductive behaviors. The study of Flaherty & Moss, (2007) asserts organizational justice to be a mediator of CWB, as it suggests that individuals who perceived their own workgroup to receive more justice than other units engaged in less counterproductive work behavior. Also, Mount et al, (2006) found that, personality influences job satisfaction, which in turn, has an effect on CPBs (*Counter Productive Behaviors*). Also the study of Deshpande et al, (2005) found that, respondents with high EI (*i.e. Emotional Intelligence*) perceived counter productive behaviors to be more unethical than those with low EI. This suggests that people with high EI tend to be better corporate citizens and that better ethical attitudes towards their firm and work. In a nutshell, Kelloway et al, (2002) suggests CPBs (*Counter Productive Behaviors*) and OCBs (*Organizational Citizenship Behaviors*) are negatively correlated.

**H$_1$:** *after a comprehensive literature review on the relationship of OCB and CWB we can argue that CWB will prove negative correlation with OCB.*

### 3. Theoretical framework

**Refer to Figure 1 (Appendix I)**

The theoretical framework is the graphical summary of the entire literature review. We can also say that the theoretical framework discusses the relationship among the variable(s) (i.e. CWB) that are deemed to be integral to the dynamics of situation being investigated. The above diagram depicts the relationship between Organizational Citizenship Behavior (OCB) and Counterproductive Work Behavior (CWB); it will help us to test the prior generated postulate and certain relationships and will improve our understanding of the dynamics of the situation.

### 4. Participants, measures & methodology

*4.1 Participants*

The participant population for the study comprised of different companies working in the public sector of the country, particularly the banking and insurance sector. A systematic sampling procedure was first used to select the random company out of which the individual respondents were chosen through a simple random sampling procedure.

The total distributed questionnaires among the individuals were 275, out of which 221 responses were received. The high turnover of almost 80% can be attributed to the involvement of the respondents, in an issue which is closely related to their performance level and perhaps the motivation too. The unit of analysis was the individuals who responded to the survey.

*4.2 Measures*

In our survey, responses were rated on the Likert-scale format, with answers ranging from 1 to 5 (1 = never and 5 = always). To measure Organizational Citizenship Behavior (OCB); we used OCB measure developed by Motowidlo & Van Scotter (1994) and Lee & Allen (2002). The measure developed by Bennett & Robinson (2002), was chosen to determine and scale the Counter Productive Behavior (CWB), among the respondents.

The respondents were assured of confidentiality to guarantee the fairness of responses. To avoid any oversight due to a non-serious attitude we tried to utilize the time off of employees to fill the questionnaires. Also the respondents were provided with full explanation of the questionnaire.

*4.3 Methodology*

Following the collection of data, all the data received in the form of individual responses, was punched and a set of analyses were applied, to investigate the hypothesized, inverse relationship between OCB and CWB, their level of impact (significance), along with the direction of the relationship (if any).

### 5. Results

*5.1 Demographics*

The subsequent diagram depicts the demographical data distribution, pertaining to the respondents on the basis of age, education and gender.

**Refer to Figure 2 (Appendix I)**

The third column shows the number of respondents falling under the criteria and description mentioned in the first and second column respectively, and based on the frequency, the fourth column yields the percentage of respondents falling under the relative description (criterion) mentioned.

The careful analyses of the above tabulation suggests that most of the respondents were young (16-24), were reasonably educated i.e. graduates; but as far as gender categorization is concerned, we observe that there is no mark difference between the percentages of male and female workers, this may be due to recent delineation from the trend of not allowing females to work.

*5.2 Correlation Analyses*

**Refer to Figure 3 (Appendix I)**

The above mentioned value for correlation is proving the hypothesis to be true, still it differs from the value obtained after research by the western researchers, as results achieved by Dalal (2005) ranged from -0.33** to -0.11** between OCB-I, OCB-O and CWB-I, CWB-O. The results of Miles et al, (2002) are also aligned with those of Dalal (2005) i.e. -0.11**. The reasons for this variation are explained in the sections to follow.

*5.3 Regression Analysis*

**Refer to Figure 4a (Appendix I)**

**Refer to Figure 4b (Appendix I)**

The regression analyses reveal that CWB accounts for almost 55% of the total variation in OCB, which means that all the factors that contribute to the increment in CWB also have their role in the diminishing of OCB. Although the results are unexpected and quiet surprising for the researchers, as this value was anticipated to be less than the currently achieved one.

## 6. Discussion

After all the aforementioned statistics, we can easily concede that OCB and CWB are negatively related to each other hence proving the worth of our hypothesis. To the researchers expectations, the results found in the current geographical context are similar to those established by the western researchers but the strength found in our geographic context is more which can be explained using the following notion i.e. Pakistan is a developing country, the motivation level exists mostly on $1^{st}$ two levels of Maslow's hierarchy of need theory, that's why people strive for a job where they can get maximum salary, they usually don't bother about the working environment and like, due to this very reason people who are satisfied with their position at an organization have developed citizenship behavior over time, and the rest who have reservations on the manner, their organization treats them, have developed counterproductive work behavior (CWB).

As mentioned earlier, both the constructs chosen have a significant impact on the performance whether be it individual or organizational. Our study has yielded an inverse yet strong relationship between the chosen constructs as per the hypothesis. And it has been found that employees rating high on OCB scale are found to rate low on CWB scale. Interestingly employees projecting OCB, also sometimes do tend to exhibit actions depicting CWB but that cannot be viewed as permanent virtue, as Counterproductive Work Behavior means the exhibition of counterproductive actions on a routine and permanent basis.

OCB is regarded as selfless behavior of employees towards the organization, this behavior can help the organization a long way towards progress, as an employee exhibiting this behavior can be expected to do anything under his/her power to benefit the organization. OCB can also be explained as the maximum an employee can give as a token of thanks to his/her organization.

CWB on the other hand is something which can become a worse nightmare for an organization's management, as employees demonstrating such behavior are not non-productive but are counter-productive, because they tend to play a role which altogether reverses the organization's progression. Mild examples of CWB identified in previous researches, could be littering the environment, cursing co-workers etc.

As some researchers have also treated OCB and CWB as two extremes of a continuum, we agree to this notion as OCB and CWB cannot co-exist in a given situation for a given employee, i.e. either the employee will project Citizenship Behavior or Counterproductive; because citizenship behavior is something which can be a resultant of the perception of the employee, as being fairly treated by the higher-ups or due to any sort of empathetic conduct by the peers; whereas counterproductive behavior can be consequential outcome of dissatisfaction among the employees due to the reasons mentioned earlier or actions that are considered by the employees as unfair and like, here one thing needs readers and analysts observation, that is an employee will project counterproductive behavior, if he/she feels being treated unfair, even if the organization is treating him/her well in reality, as results found by Spector & Fox, (2002) purports CWB and OCB are the result of both employee and organization variables, and that they have many similar causes. This

parallelism makes it useful to think about both as forms of voluntary response to organizational conditions that have emotional meaning for people. Which means it is primarily based upon the employees own personal judgment and perception regarding the organization.

## 7. Conclusion

The sole reason to conduct this study was to measure the relationship between Organizational Citizenship Behavior (OCB) and Counterproductive Work Behavior (CWB) and to explore for methods which can result in constructive behaviors in our case OCB and that may help us in avoiding destructive behaviors like CWB. As mentioned earlier the results are aligned with the western researches on these constructs.

A thorough analysis of the demographic data revealed that respondents' age has been observed to play its role in the study, as it has been experienced that elderly are more prone to display OCB. It has been found that the respondents who were well educated showed an inclination towards exhibiting OCB. Also it has been observed that the results from the male and female respondents are quiet alike, which suggests that gender has no affect, whatsoever, on the chosen constructs i.e. OCB and CWB.

Controlling the counterproductive behavior may result in harmonious and pleasant work environment as the friction between the management and employees will diminish, the employees work life will become rich and conducive for improved performance. As Spector & Fox (2002) recommends that, from a practical perspective, the management of conditions that tend to induce a particular emotion can go a long way toward reducing CWB and enhancing OCB, and thereby improving both employee and organizational well-being.

Moreover, the management must also strive to retain and continue with the state of organizational citizenship, as it results in improved performance, which is advantageous and helpful to both the workforce and the organization, resulting in swift achievement of objectives by the organization and hence a better work-life for the employees.

## 8. Limitations

As stated previously in the document, ours was a cross sectional study in which the respondents rated themselves, which may have an effect on the study due to the difference in perception regarding the questions included in the study, although a thorough elucidation was provided to the respondents who had confusion.

Secondly, there are chances of the contamination of data due to the self rating procedure, as incase of counterproductive work behavior, the respondents are usually expected to rate themselves low on CWB scale, even if they are assured of confidentiality.

Thirdly, as the results prove that about 55% of variation in OCB is accounted for the factors that also determine CWB, there still is room present for the subsequent researchers to determine the antecedents that account for the remaining 45% of the chosen dependant variable. Also as it has been found that age and education does mediate the relationship, it is advised for the upcoming researchers to include tenure in their demographic analyses which is expected to play some role in the determining of the chosen variables.

The fourth and final limitation is related to the modest number of respondents, as this study was affected by lack of resources, the sample may not be a complete representative of the population. Apart from the 'lack of resources' factor, the employees of the chosen sector have much to do with the current size of the sample, as many of them were hesitant and apprehensive about the 'self perceived' consequences incase of their self rating on CWB scale (discussed previously in second limitation).

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**Appendix I**

| Counterproductive Work Behavior | | Organizational Citizenship Behavior |
|---|---|---|
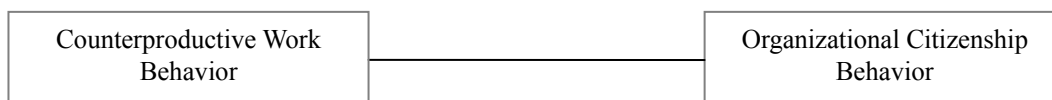
Figure 1. Theoretical Framework

| Criteria (Description) | | Frequency | % |
|---|---|---|---|
| **Age** | 16-24 | 187 | 85 |
| | 25-33 | 29 | 13 |
| | 43-above | 5 | 2 |
| **Education** | Undergraduates | 60 | 27 |
| | Graduate | 111 | 50 |
| | Masters | 50 | 23 |
| **Gender** | Male | 118 | 53 |
| | Female | 103 | 47 |

Figure 2. Demographical data

| | Mean | S.D. | Pearson Correlation | |
|---|---|---|---|---|
| | | | OCB | CWB |
| **OCB** | 3.9397 | .24214 | **1** | -.742(**) |
| **CWB** | 1.5084 | .14365 | -.742(**) | **1** |

Figure 3. Descriptive and Correlation Analyses

** Correlation is significant at the 0.01 level (2-tailed).

[A] Number of Respondents = 221

| Model | Predictors | Beta | t | Sig. |
|---|---|---|---|---|
| 1 | OCB (Constant) | - | 50.317 | .000 |
| | CWB | -.742 | -16.361 | .000 |

Figure 4a. Regression Model

a) Dependent Variable: OCB

| R square: .550 | Adjusted R square: .548 |
|---|---|
| F: 267.679 | Significance: .000 |
| Number of Respondents: N = 221 | |

Figure 4b. Regression Model

a) Predictors: OCB (Constant), CWB

**Appendix II**

**Questionnaire**

**Biographical Characteristics (Section I)**

1.　　Age: _____ years

2.　　Gender:　Male/　Female

3.　　Qualification: (Highest) _____

**Organizational Citizenship Behavior (Section II)**

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4.　　Adjusted your work schedule to accommodate other employees' requests for time off.

5.　　Helped others who have been absent.

6.　　Showed genuine concern and courtesy toward coworkers, even under the most trying business or personal situations.

7.　　Offered ideas to improve the functioning of the organization.

8.　　Expressed loyalty toward the organization.

9.　　Taken action to protect the organization from potential problems.

10.　　Demonstrated concern about the image of the organization.

11.　　Took the initiative to troubleshoot and solve technical problems before requesting help from a supervisor.

12.　　Voluntarily did more than the job requires so that I can help others or contribute to the overall functioning of the facility.

**Counterproductive Work Behavior (Section III)**

© Bennett and Robinson (2002)

13.　　Taken an additional or a longer break than is acceptable at your workplace.

14.　　Come in late to work without permission.

15.　　Littered your work environment.

16.　　Cursed at someone at work.

17.　　Called in sick when you were not.

18.　　Lost your temper while at work.

19.　　Neglected to follow your boss's instructions.

20.　　Left work early without permission.

21.　　Left your work for someone else to finish.

22.　　Acted rudely toward someone at work.

23.　　Put little effort into your work.

**Likert Scale used**

| Never | Seldom | Sometimes | Often | Always |
|-------|--------|-----------|-------|--------|
| 1 | 2 | 3 | 4 | 5 |

# Multinational Corporation Technology Innovation

# Globalization Tendency and China's Countermeasure

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**Abstract**

This article analyzed the motive of multinational corporation technological innovation globalization, the characteristic and the present situation ,thought strives for the cost advantages and the market advantages, contention and reserve human resources, which are the strategic goal of multinational corporation implements technological innovation in China. Therefore, Chinese enterprise's strategy tactics should include: (1) Imitates innovation strategy (2) Cooperates innovation strategy (3) train innovation strategy (4) Promotes innovation ability strategy.

**Keywords:** Multinational corporation, Technology innovation, Globalization, Strategy goal, Countermeasure

## 1. The main motive of Multinational corporation technology innovation globalization main motive

The multinational corporation technology innovation globalization is the effective way which the enterprise pursues to innovation development and to continue competitive ability. Their main motives are:

*1.1 In order to meet the host country consumer's demand, simultaneously causes the research development information channel internationalization, can quickly make the response for the global customer's demand*

As a result of multinational corporation's management scale and scoop is more and more bigger, the overseas turnover accounts occupy on the total turnover proportion to be more and more bigger, a multinational corporation management condition in the overseas, already was not only how many profit, but is relates the enterprise life and death. Therefore, the multinational corporation originally established "the engineering department" in the overseas,(namely the department of responsible technical advisor),which unsuitably provides the technical service for the overseas customer. Along with the international market scale expansion and development, this kind of overseas engineering department gradually turns the technical experiment department, and adjustment product and development new product according to the local consumer's request. Moreover, the host country government also formulates the correlation policy and ask foreign enterprise to observe, hope their subsidiary company to establish research development department in host country, simultaneously, create working opportunity and leaves the technology when is selling product. Because the overseas subsidiary company not only is the product sales department, but also it has the research development ability, therefore, it is easy to obtain the competitive advantage. At the same time, overseas subsidiary companies and its research development organization will gather host country's various research development information to the partner company, make the information channel internationalization.

*1.2 Quickly keep track of host country's advanced technology development, make its company technical level to maintain the advanced level*

This is the basic motive of the multinational corporation technology innovation research and development globalization. In recent years, American, Japanese, European's multinational corporation more and more realized that the company technology strategy should not emphasis in "self-sufficient", should implement "surpassing type", "surmounting type". Because of the economical globalization, the product and the market expanded to request enterprise's research development should have a stronger technology base, particularly at present, the technology unceasingly alternate development, obtains the new technology cost unceasingly rise. American, Japanese, European's multinational corporation all have their advantages in the area of technology had. Therefore, the various countries' enterprise all modestly studies, in order to keep track of the newest technical development.

*1.3 Hire the higher level scientists and technicians in host country, cooperation with their research and development laboratory*

The multinational corporation establish research development department in host country and may hire the higher level scientists and technicians, simultaneously, also has created the opportunity and the place for technicians of partner country and the overseas partner that mutually study and research. This can cause the technicians of partner enterprise and the local technicians to work together, and may contact the new product, the new mentality, and the new craft.

## 2. Multinational corporation technology innovation globalization characteristic and development tendency

*2.1 Characteristic*

First, multinational corporation technology innovation key point in applied research. At present, the multinational corporation concentrates in the comparatively large-scale basic research in the overseas, including medicine and biological technology and so on. This means the technical innovation globalization mainly concentrate in the innovation of business. **Next**, the multinational corporation research and development function is shifting to manage an expanded cooperation network, this network including competitors, university and several of research development organization. Third, the multinational corporation research and development strength to be attenuate, and the center laboratory to be more little tendency , the parent company research and development organization's duty is that charging with formulate globalization technological development strategy and goals, simultaneously, assignment works to the branch in overseas.

The research and development concentrates in the areas of the high-tech and the key industry, mainly including medicine and biological technology; the chemical industry and the rubber industry; automobile, computer software, semiconductor, precision machinery and so on.

*2.2 Present situation*

First, the technical innovation globalization core in the developed country, which mainly is US, Japan, England, Germany, France and so on, it is not balanced between the profession situation, US and Europe are main receiver of the technical innovation. Enters in 1990s,American,Europen's transnational enterprise also gradually enlivens of research development operation in Japan; In the developing nation, research development operation also gradually emerges in China, for example, there are "China Microsoft Research Insititute", "China Ericson Academy of Science", and so on research development organization in China. Second, the developing nation already realized to positive efficiency of the technical innovation globalization, all join to this domain according to own characteristic. For example, some developing nations give the preferential policy to the developed country enterprise research technology fund in own country, encourages the multinational corporation to set up the research and development organization, promotion technology innovation localization and so on. positive efficiency Moreover, some multinational corporation of developing nation start to explore mutually studies and development feasibility. Third, the multinational corporation overseas technology innovation research branch office's patent increases day and day. UNCTAD (1999) information demonstrated that, from 1991 to 1995, 11 percent of registration patent of the largest multinational corporation in American which obtained from outside of parent company's country. There are many differences between countries patent quantities: England, Oland, Belgium, surpasses 50% registration patent to belong the overseas research development organization, but Japan's foreign research and development organization's parent only occupies 1.1percent.

## 3. Multinational corporation implementation technology innovation strategy goal in China

*3.1 The cost superiority*

From human resources cost analysis, the highly industrial structure of developed country which causes to lose the comparison superiority of labor force cost, transferred the partly research development operation to the developing nation, and was helpful to reduce the enterprise wages payment. It is well known, Chinese domestic staff wages level is more lower than the foreign staff, multinational corporation establishes the research and development organization in China which carry on the technical innovation, hires the domestic technologist, may reduce the research expense, therefore, establishes it's cost superiority in market competition, maintain enterprise's competitive advantage.

From the transaction cost analysis, the multinational corporation carries on technical innovation in China, in order to service for own production enterprise in China, the distance between the research and development organization and production enterprise to be short, causes to reduce enterprise's transportation cost; collects the market information cost in China to be lower than collects Chinese market information cost in partner country.

The demonstration effect of reduce cost which a multinational corporation establishes the research and development organization in China, make more multinational corporation to establish the research and development organization in China, thus achieves new competitive equilibrium.

*3.2 The market superiority*

The data display, the life circle of product and technology reduces day and day, the enterprise all try to reduce this period of time that from the technology to the product transformation . There are difference areas, such as the region, the culture and the language, multinational corporation's technology may not suitable in other countries, for example, Microsoft's software must be transform Chinese to be able to use by most Chinese people. Production globalization tendency inevitably impels technical innovation globalization; the external performance of this kind of tendency is which establishes the research and development organization in China. As we know, the market demand changing more and more quickly, the multinational corporation which establishes the research and development organization in China can grasp the Chinese market changing, and promptly carries on the technical innovation in view of market, and supplies suitable market demand product by a shorter time, obtains competitive opportunity.

*3.3 Recruits and reserve human resource*

The knowledge economy time, the knowledge stores quantity and increase quantity are important symbol which weighs the enterprise strength. Enterprise's competition is talent's competition. Human resources easily flow in domestic compare with other resources, but quite difficulty flow between country and country. The multinational corporation globalization strategy implementation, merely depends upon its domestic human resources is insufficient, native strategy in the host country must depend upon host country human resources to complete. China has a giant market; nearly all multinational corporations make China as strategic point. Recruit the Chinese massive talented people is prerequisite which succeed in China. For example, China research institute's "Microsoft -- China Scholars Plan", Intel Company subsidies Chinese outstanding elementary and middle school students to go to US participated in "The Young Nobel Prize" and so on.

## 4. Countermeasure

*4.1 Imitated innovation strategy*

Chinese enterprise technology innovation system is historical development product. Chinese socialism construct of several dozens of years make Chinese state-owned enterprise's technical condition to have fundamental improvement, but along with the economic reform development, the technology advancement speed is slow which the traditional system created; the question exposed which technology and market came apart. In order to meet need for economy development, change unsuitable condition which the company technology innovation system with external economy environment, Chinese enterprise must essential formulate and implement advanced technology innovation strategy.

 Chinese enterprise has many superiority conditions of implement technical innovation. The strategy of "the science education promote China" and the whole plan of develops high-tech industry; Chinese enterprise's 50 years management experience; Chinese human resources and material resources are relatively rich; Chinese coast opening area high-tech industry develops successful pattern and so on; During display superiority, another for much condition is model, study and imitate massive new high-tech science and technology achievements of overseas enterprise. As a developing nation, the most effective method of impels economy development is that promote the technical performance of economical system, introduction and absorption foreign advanced technology, obtains a greater income by a smaller price. Whether the technical innovation strategy fit and unfit quality are decided by choose strategy effective display own superiority. The leading strategy risk was bigger, moreover it needed enterprise to have very strong technical strength and economic potentiality, but at the present, Chinese majority enterprises do not have such strength. Looked from overall that, imitate strategy is Chinese majority enterprises optimal strategy of technology innovation.

*4.2 Cooperation innovation strategy*

China's innovation resources scale extremely limited the company technology innovation investment accounts for sales income proportion quietly low, and it is very difficult to be enhanced in the short-term. The cooperation innovation strategy is technical innovation way that taking innovation as a goal, taking cooperation as essential method, taking resources supplementary as content. This is also technical innovation main form of including Chinese enterprise and developing nation enterprise.

The corporation innovation strategy may fully use innovation resources, directly realizes technology and economy effective union, take the market system as the foundation, through concentrates kinds of innovation resources to carry on innovation, may realize innovation economies of scale, and reduces innovation cost, promotion economy growth. In the technical introduction, through guidance and organization cooperation of production and researching, centralism understood, unites efforts innovation, not only may reduce repetition introduction and invalid introduction, but also may depend upon multi-disciplinary cooperation, rapidly enhances the company ability of understood and innovation again for introduced technology.

*4.3 Training the innovation talent strategy*

The technical innovation talent is the technical innovation designer and the implement actioner. The innovation talented person's quantity and quality are deciding Chinese enterprise's innovation scale, innovation efficiency and innovation ability. At present, technology innovation talented person lacks, especially innovation enterpriser lacked already seriously restriction Chinese technology innovation development. Looked from the overseas practice experience, the technical innovation talent training should be put on the work important position. The technical innovation talent is important resources to enhance Chinese knowledge economy growth. The technical innovation talent has gaining knowledge ability, understanding knowledge ability and innovation ability will become the symbol for international competition strength in the knowledge economy time.

The technical innovation talent training which fundamentally decides Chinese economy industrialization, information and knowledge degree.

*4.4 Promote technical innovation ability strategy*

The technical innovation ability directly involves knowledge essential factor production, utilization and transformation; they are the knowledge innovation ability important constituent. In order to reduce disparity distance of Chinese enterprises technical level and developed country, acceleration Chinese industrialization advancement, urges the knowledge economy to grow, must through promote the technical innovation ability to realize. Through create technical innovation ability factors, enable the enterprises to have the primary high-tech ability, the leading industry and in correlation industry technology innovation ability foundation, realization technology innovation ability to a high level. On the basis of innovation which in the full cultivation of high-tech industry, leading industries and technology-related industries, enhances the whole level of the technological innovation capability. After raise the technological innovation capability level, there is a new round of development again, in order to achieve continue development of technological innovation capacity.

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# Study of the Relationship between Capital Structure Measures

# and Performance: Evidence from Iran

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## Abstract

Financing decisions is one of the important areas in financial management to increase shareholder's wealth. To determine how managers achieve this object, it can say performance measurement of company. In this paper we have studied the issue of whether the capital-structure decision impacts firms' performance. For this reason, we used 3 definition of capital structure in scope of book value to market value and 5 measures were assumed for financial performance. In this paper, we applied the data of 117 corporates in Tehran Stock Exchange (TSE) in a 5-year time horizon (2002-2007).Results of our study demonstrated that capital structure influences financial performance. The significance of the influence of capital struture on performance respectively is belonged to measures of adjusted value, market value and book value.

**Keywords:** Capital structure, Financial performance, Market value, Book value, Adjusted value

## 1. Introduction

An efficient economic system calls for a dependable mechanism to allocate its resources and optimized leadership of land, labour and Capital. In a market economy, this allocation process consists largely of a set of private decisions, which are directed by a network of free markets and flexible prices. Important among these decisions are capital investments decisions that are vital at two levels: for the future operability of the individual firm making the investment, and for the economy of the nation as a whole. At the firm level, capital investment decisions have implications for many aspects of operations, and often exert a crucial impact on survival, profitability and growth. At the national level, the proper planning and allocation of capital investment are essential to an efficient utilisation of other resources, poorly placed investment reduces the productivity of labour and materials and sets a lower ceiling on the economy's potential output.

Much of the theory in corporate sector is based on the assumption that the goal of firm should be to maximize the wealth of its current shareholders. One of the major cornerstones of determining this goal is financial ratio. Financial ratios are commonly used to measure firm performance. Generally, corporations include them in their annual reports to stakeholders. Investment analysts provide them for investors who are considering the purchase of a firm's securities.

Financial ratios represent an attempt to standardize financial information to facilitate meaningful comparisons. It provides the basis for answering some very important questions concerning the financial well being of the firm.

Its objectives are to determine the firm's financial strengths and to identify its weaknesses.

### 1.1 Liquidity ratios

Liquidity refers to the firm's ability to meet maturing obligations and to convert assets into cash. It relates to the ease and quickness with which a firm can convert its non-cash assets into cash, as well as the size of the firm's investment in non-cash assets vis-a-vis its short term liabilities.

The asset should be converted into cash without a significant price concession.

The true test of liquidity is whether a company has the ability to pay its bills on time. This is obviously an important factor to the firm's creditors.

Liquidity ratios are financial ratios used to assess the ability of a firm to pay its bills on time. They indicate the firm's ability to meet its short-run obligations.

These ratios measure the firm's ability to fulfill its short-term commitments out of current or liquid assets and therefore focus on current assets and current liabilities.

*1.2 Return on investment (ROI)*

This ratio indicates the ability of the firm to earn a satisfactory return on all assets it employs. This ratio tells us how effective the firm is in terms of generating income, given its asset base. It determines the yield on the firm's assets by relating net income to total assets. It is therefore an important measure of the efficiency of management. This ratio is also called return on total assets. Total assets are used in an attempt to measure total investment.

The higher the ratio is the better, because this provides some indication of future growth prospects.

ROE is calculated by taking the net result over shareholders' equity for each specified year. ROE represents what return the company is making on the shareholders' funds invested in the company. ROE assesses leadership's ability to get the job done. A business that has a high return on equity is said to be one that is capable of generating cash internally. ROE, along with Return on Assets (ROA), is one of the all- time favourites and perhaps most widely used overall measure of corporate financial performance (Rappaport 1986, p. 31). This was confirmed by Monteiro (2006, p. 3) who stated that ROE is perhaps the most important ratio an investor should consider. The fact that ROE represents the end result of structured financial ratio analysis, also called Du Pont analysis (Stowe, Robinson, Pinto & McLeavy, 2002, p. 85; Correia, Flynn, Uliana & Wormald, 2003, p. 5-19; Firer, Ross, Westerfield & Jordan, 2004, p. 67) contributes towards its popularity among analysts, financial managers and shareholders alike.

*1.3 Leverage ratios or gearing*

These ratios deal with the amount of debt in the firm's capital structure and its ability to service (or meet) its legal obligations. It tells us the relative proportion of capital contribution by creditors and by owners. These ratios focus on the liabilities and stockholders' equity from the balance sheet and on the income statement and also whether the firm can afford the level of fixed charges associated with its use of non-own-supplied funds.

For emerging market countries, ownership structure plays a very important role incorporate finance (LaPorta et al., 1999), perhaps more so than in developed countries.

For example, Claessens et al. (2000) specifically examine corporate ownership for East Asian firms and find that owners exert significant control over the firms they own, which is not surprising given that managers and owners are often the same people. In addition, due to the relatively undeveloped market structure of emerging markets, the degree of information asymmetry among participants is relatively high, which allows influential manager-owners greater latitude to engage in and act upon their desires.

## 2. Problem discussion

Survival and growth needs resources but financing of these resources has limitation. Therefore, applying of them should be in the way that creates an appropriate share of value for providers and users of resources.

Providers of resources are related with different levels of risk, benefit and control consequently, their expected returns are not the same.

Using of debt makes tax saving. But because of on- time interest payments is a risk – taking way. On the other hand, lavishing stock holders eavity increases the value of expected returns of share holders so financing expenses will be high. Thus, when capital structure that means a merger of source of finance minimizes the average costs of capital structure and leads to good performance is considered optimized one.

## 3. Significance of the research

Performance measurement is the base of investing and financing decisions. Debtholders evaluate performance to decide about interest rate. Investors, on the other hand are interested in evaluating the performance to have knowledge of success of management in applying their capital.

To help investors to recognize the link between capital structure and financial performance and choosing appropriate measures to evaluale and analyze the companies' financial status is the purpose of this paper. Until, the prediction of companies' power in value-enhancing would be easier for individuals.

**3. Literature review**

Regarding this subject, the reviews of literature are sub-divided into several parts, which it is going to explain respectively.

*3.1 Measures of leverage*

There are various measures of leverage, which can be classified as accounting based measures, market-value measures and quasi-market value measures. When choosing a measure of leverage, it is useful to keep in mind that the theoretical framework for the relationship between leverage and performance is based on market values of leverage. Since market values of leverage may be difficult to obtain, accounting based measures are often applied as proxies. Rajan & Zingales (1995) discuss various accounting based measures of leverage and their informational content. They suggest that the choice of measure should be based on the objective of the analysis. For instance, the ratio of total liabilities to total assets can be considered as a proxy for what is left for shareholders after liquidation, but is not a good indication of the firm's risk of default in the near future. Also, since total liabilities include such balance sheet items as accounts payable, which are used for transactions purposes rather than for financing, it may overstate the amount of leverage.

This measure can be improved by subtracting accounts payable and other liabilities from total assets. There is still one issue of concern since the measure contains liabilities that are not related to financing, e.g., pension liabilities, thereby underestimating the size of leverage. The ratio of total debt to capital, where capital is defined as total debt plus equity, is assumed to solve this problem and can be seen as the best accounting based proxy for leverage (Rajan, Zingales, 1995).

*3.2 Different theories about capital structure*

Since Modigliani and Miller published their seminal paper in 1958, capital structure has generated great interest among financial researchers. They argued that in efficient markets the debt-equity choice is irrelevant to the value of the firm and benefits of using debts will componsate with decrease of companies stock. Prior to MM theory, conventional perspective believed that using financial levevage increases company's value. In this respect, there is an optimized capital structure that minimiizes capital costs.

In a subsequent paper, Modigliani and Miller (1963) eased the conditions and showed that under capital market imperfection where interest expenses are tax deductible, firm value will increase with higher financial leverage. Models besed on impact of tax, suggest that profitable companies should have more debts these firms have more need for tax management in corporaration's profit. However, increasing debt results in an increased probability of bankruptcy. Hence, the optimal capital structure represents a level of leverage that balances bankruptcy costs and benefits of debt finance.

*3.3 Static trade – off theory*

Jensen and Meckling (1976) suggest that the firm's optimal capital structure will involve the tradeoff among the effects of corporate and personal taxes, bankruptcy costs and agency costs, etc.

*3.4 Agency costs theory*

Agency costs rose from separation of ownership and control and conflicts of interest between categories of agents. One of the problems that cause conflict between managers and shareholders is free cashflows. Jensen (1986) and Willianson (1988) define debt as a disciplinary tool to ensure that managers give preference to wealth creation for the equity-holders. Thus, in the companies that have high cash flow and profitability , increasing of debts can be used as a tool of reducing the scope for managers until resources of company may not be waste as a result of their in dividual purposes.

The other conflicting problem is that managers may not receive all the benefits of their activities. This is seen when manager's share in ownership of company is low. When the manager's increase stock is high, this inefficiency decreases. Therefore, it is appropriate that by increasing debts instead of stock issuance prevent from decreasing of manager's share of owrership interest (Huang, Song, 2005).

Stulz (1990) like Jensen believes that debts payment decreases cash flows available for managers. But, on the other hand, he states that this decrease will decrease the opportunities of profitable investing.Thus, companies with less debt, have more opportunities for investment and in comparison with other active firms in industry, have more liquidity. Additional costs of debt include potential bankruptcy costs, and agency costs associated with the monitoring of investments by bondholders. Costs and benefits of alternate financial sources are "traded off" until the marginal cost of equity equals the marginal cost of debt, yielding the optimal capital structure, and maximizing the value of the firm. The alternative theory, discussed by Meyers (1984) and Fama and French (2002), describes a firm's debt position as the accumulated outcome of past investment and capital decisions. In this theory, commonly called the "Pecking Order" theory, firms with positive net present value investments will finance new investments first using internal funds, and in the absence of internal funds will finance them with safe debt, then risky debt, then with equity, but only if there is no

other alternative. Thus, financing investments using internally generated funds may be the cheapest source, and the firm's financial structure is the outcome of past cash flows and investment opportunities.

The conflict between benefits of share holders and creditors has consequevces like increase of interest rate by creditors, addition of supervision costs and decrease of investment. So, this conflict demonstrates that high leverage leads to poor performance (Jenson, 1976).

*3.5 Choice – picking order theory of financing*

Managers in comparison to investers have more information about operation. Myers and Majluf (1984) believe that this causes that pricing the stock with investors be understate. In this condition that there is asymmetric information, companies prefer financing by internal sources to stock issuance and where there is not adequate internal sources, they refer to borrowing. Consequently asymmetric information is the base of choice – picking order theory of financing. The main conclusion drawn from the asymmetric information theories is that there is a hierarchy of firm preferences with respect to the financing of their investments (Myers & Majluf, 1984). This hierarchy of preferences suggests that firms finance their investments first using internally available funds, followed by debt, and finally through external equity.

Dimitrov and Jain (2003) with operational performance of firms proposed another theory . They argued that if manager have access to private information about becoming worse in future operational performance they will be increase debt. Thus, increasing the leverage is a negative sign and demonstrates poor forward performance.

Rajan and Zingales (1995) argue that larger firms tend to disclose more information to outside investors than smaller ones. Overall, larger firms with less asymmetric information problems should tend to have more equity than debt and thus have lower leverage. However, larger firms are often more diversified and have more stable cash flow; the probability of bankruptcy for large firms is smaller compared with smaller ones.

The firm's optimal capital structure will involve the conflicting theoretical arguments.Recent findings of Titman and Wessels (1988), Harris and Ravive (1991) and Rujan and Zingales (1995) confirmed the results of Mayers that believed increase of leaverage will decrease profitability.

But, Janson, unlike Mayers, predicts a positive link between financial leverage and profitability in efficient market and if the market be inefficient, there will be a negative relationship beteen them. In 1988, Rajan and zingales confirmed this theory. Bradly (1984) demonstrated that the firms with less operational profits, also have less leverage.

Cai and Zhang (2005) by studing this concept, found that in corporates with high leverage, converse link between leverage changes and return on stock is stronger (Rajan, Zingales, 1995).

Wald (1999) believed that the link between profitability and debt-asset ratio is positive and signifiicant. Profitabiliy was definding in the form of earning before interest and tax (EBIT) (Rajan, Zingales, 1995).

## 4. Research methodology and hypotheses

The purpose of this paper is to demonstrate the impact of defining the main variables of capital structure and performance on emperimental results. Therefore, the following hypotheses were extracted:

1) There is a meaning ful link between capital structure and return on investment (ROI);

2) There is a meaningful link between capital structure and Return on equity (ROE);

3) There is a meaniful link between capital structure and return on stock (RET);

4) There is a meaniful link btween capital structure and earnings before tax to sale ratio (EBT / S); and

5) There is a meaningful link between capital stracture and operational profit to sale ratio (OPR/S).

The starting point of our study are all non-financial firms listed at the Tehran Stock Exchange The 117 respondent firms in Tehran Stock Exchange constituted the sample in our empirical test of the theoretical model. For these firms we collect data for the five-year period 2002-2007 from publicly available sources. Companies, for which performance data between 2002 and 2007 was incomplete due to mergers and acquisitions, were however excluded from this sample. Moreover, financial firms were excluded due to the peculiarity in terms of operations, structure of assets and liabilities that would hinder analysis and inter-company comparisons.

Internal secondary data was used in order to estimate the value of the dependent variable as well as the values of the independent explanatory variables. Archives, reports and documents are examples of internal secondary data In the case of missing information, complementary data was collected by using reports available in the library and on the Internet.

Data was processed by descriptive statistics containing Mean, S.D and inferential statistics containing Pearson Correlation, ANOVA test using Statistical Package for Social Sciences (SPSS).

*4.1 Data analysis*

After gathering necessary data, they were analyzed by Excell and the variables were calculated. Then the variables

entered in SPSS software and then corrlation between dependent and independent variables were measured by using Pearson correlation coefficient.

The difference between variables of capital structure is a result of the way of assesing equity in adjusted debt ratios, avarag price of selected firms at the end of the terms and avarage of shares in each of the studing terms has been used.

For computing the market value of leverage, we use market value and the number of issued stock at the end of each term.

To test the hypotheses, correlation matrix between capital structure and performance is used. Also to show the meaning fulness of the correlation between variables, instead of critical value of student's T test, significance level has been used when sigificance level is less than %5, H0 (null hypothesis) is rejected. In H0, it is assumed that there is not a link between two variables.

Table 1 represents the empirical results from correlation matrix between variables. It is obvious that almost all the correlations (except tow items) are meaningful in level of %1.

Insert Table 1

According to obtained results, Ajmv(adjusted market value), mv(market value) and Bv(book value) of capital structure respectively have the most correlation with finacial performance measures;

$$r_{\mathrm{Pr},AjMV} > r_{\mathrm{Pr},MV} > r_{\mathrm{Pr},Bv}$$

*4.2 Results*

Tests on coefficient of correlation demonstrated that there is a meaningful link between 3 variables of capital structure and 5 variables of performance except the link between ruturn on stock and book value of capital structure that is not meaningful in significance level of %95. This correlation between return on stock and adjusted market value is %95 and among other variables is equal to %99.

Results from tests on correlations and regression revealed that except the link between ruturn on stock (hypothesis 3) in which the correlation between return on stock and market value of capital structure is statistically stronger, in the other correlations, adjusted value has the strongest relationship with performance measures.

The negative relationship is consistent with Myers' (1984) notion that in general firms prefer internal to external financing sources. Profits as internal sources reduce the dependency of firms on leverage.

Insert Table 2

Rajan and zingales (1995) found that if return on stock and investments are fixed in a short term, and the main way of external financing is debt, there is a negative correlation between performance and leverage.

**5. Discussion and Conclusion**

One of main factors subject to intense debate in capital structure studies is whether to use the market value or the book value of debt and equity as the correct measure of leverage. Those who favor the use of the book value measure present two strong arguments. First, the main cost of borrowing is the expected cost of financial distress in the event of bankruptcy. Financial distress affects the weighted average cost of capital and consequently the optimal leverage. In such a situation, the value of the distressed firm is closer to its book value. Once the debt has been issued, changes in the market value of that debt do not affect the interest tax shield cash savings. Furthermore, if bankruptcy occurs, the accurate measure of debt-holders' liability is the book value of debt and not the market value of debt. Second, previous studies have shown that managers think in terms of book rather than market values. Unlike market values, book values are more easily accessible, more accurately recorded and not subject to market volatility. On the other hand, those who prefer the market value to book value argue that the market value ultimately determines the real value of a firm. They suggest that it is possible for a firm to have a negative book value of equity while simultaneously enjoying a positive market value. This is possible because a negative book value reflects previous losses while a positive market value denotes the expected future cash flows of the firm. In practice, both measures of book and market values are often used.

Results of this study demonstrated that market value and adjustted value measures of capital structure in comparison with book value measures have stronger link with performance. This means market value should be taken more into consideration in evaluating capital structure.

Many measures of firm performance, such as a firm's profitability, are negatively correlated with financial leverage. This result can be interpreted in this way that high leverages companies woud have less profitability. In other words, dabt level is over than optimized level and in comparison to advantages of tax shield, incensement of financial distress costs has more significance. There are other evidences for this relationship as following: Informational asymmetry and high costs of extarnal resources and inefficiency of the market.

Total liabilities ratio (TL) is used as the main measure of leverage and all the others are employed for robustness checks. Why do we regard total liabilities ratio a more appropriate measure for capital structure? We argue that, firstly, when a firm wants to obtain more debt, the creditor will consider not only how much the firm's long-term debt is, but also how much the firm's current debt and total liabilities are. So the portion of other liabilities will affect the debt capacity of a firm. Second, current debt is a quite steady part of total assets.

The Reasons behind using of debts by Iranian companies may be constant interest rate in any level of debt and risk.

Totally, with respect to observed link between capital structure and performance, the conclusion is that company that has high profitability and good performance have less debt.

This resulls are consistent with the results of Mayers, Stalz, Rajan and Zingales.

On the method side, it would be desirable to investigate the determinants of capital structure over a longer period of time and over a number of economic cycles. Finally, the analysis could be improved by differentiating between types of debt such as long-term and short-term debt.

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Table 1. The results of correlations

| $OPR/S_{it}$ | $EBT/S_{it}$ | $RET_{it}$ | $ROE_{it}$ | $ROI_{it}$ | Variable |
|---|---|---|---|---|---|
| -0.204 | -0.252 | 0.042* | 0.184 | -0.329 | $BV_{it}$ |
| -0.423 | -0.536 | -.0162 | -0.37 | -0.604 | $MV_{it}$ |
| -0.52 | -0.649 | -.105 | -0.438 | -0.695 | $AjMV_{it}$ |

Correlation in significance level of %95 isn't meaningful (other results are meaningful)


Table 2. The results from tests on hypothesis

| Hypotheses | Relationship between leverage | Result | α | Meaningful variables (respectively) |
|---|---|---|---|---|
| 1 | $ROI_{it}$ | Confirmed | %5 | $BV_{it}$ ,3- $MV_{it}$ , 2- $AjMV_{it}$ 1- |
| 2 | $ROE_{it}$ | Confirmed | %5 | $BV_{it}$ ,3- $MV_{it}$ , 2- $AjMV_{it}$ 1- |
| 3 | $RET_{it}$ | Confirmed | %5 | $AjMV_{it}$ ,2- $MV_{it}$ 1- |
| 4 | $EBT/S_{it}$ | Confirmed | %5 | $BV_{it}$ ,3- $MV_{it}$ , 2- $AjMV_{it}$ 1- |
| 5 | $OPR/S_{it}$ | Confirmed | %5 | $BV_{it}$ ,3- $MV_{it}$ , 2- $AjMV_{it}$ 1- |

# Study on Knowledge Sharing Mechanism

# in Open Virtual Learning Communities

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**Abstract**

Open-Virtual Learning Community (E-learning) which is Based on Web2.0 plays an important role in the course of study, in the basics of analyzing the basic content and features of the open-virtual learning community, a preliminary study of the knowledge sharing mechanism is made and some further optimization of the relevant mechanisms are shown.

**Keywords:** Web2.0, Open virtual learning community, Knowledge sharing

Networking Modern distance education has been surging up with the development trend of the network communication technology, and learning of students has been extended from the traditional classroom to informal learning outside the classroom, the concept of the Virtual Learning Community (E-Learning) has come into modern education, the open virtual-learning communities plays an increasingly important role in education. The development of Web 2.0 has built a new technology platform for our open virtual learning communities, enabling it to support the study of individual learning and collaborative learning, so that the open virtual learning community becomes an important part of our life. Knowledge-sharing has direct impact on the teaching quality and effectiveness of the virtual learning communities, so it is necessary to study on the knowledge-sharing model of open virtual learning community.

## 1. The basic content of Open Virtual Learning Community

### 1.1 The meaning of Open Virtual Learning Community

Open virtual community is one kind of virtual social patterns, which is established on the network and communication technology through networking and communications tools, it is composed by a variety of different types and individuals and it is created through education, research and other activities. Cross-learning, collaboration Learning and self-study-based approach are the mainly purposes of Open virtual community, enabling learners to acquire knowledge, enhance their understanding and skills in order to form a cross-regional autonomy. It is centered by learner and it pays attention to the timely feedback and learning, providing the interactive learning in line with personal needs and characteristics, with the support of interactive tools, students can express their view and communicate with others freely, thereby solve the problem, and achieve the learning goal. Open Virtual Learning Community provides a personalized learning environment, and it is a collective activity at the same time. There will be some study groups and project teams to discuss the area in the learning process. Learning and collaborative learning can be competed among the different kinds of learning groups, the learning atmosphere is free and open so it can provide a useful expansion for classroom education.

### 1.2 The Construction and characteristics of Open Virtual Learning Community

The openness of web2.0 mainly have the content opening, opening API as well as the source open software's development and the application. Users participate in the content on their own initiative in the foundation, found the related resources. At the same time, opening A P I might be possible to have more application fusions. According to the open source software development, many educators have done the massive work in the educational technique standard, the system construction as well as the interoperability aspect. In our Open Virtual Learning Community, the study resources may be quoted willfully, and form an open learning environment, thus truly realize a personalized, equal Open Virtual Learning Community. Web 2.0 has provided a simple, useful and function—formidable platform for the construction of Open Virtual Learning Community, and it provided individual knowledge management tool like BLOG, Podcast, the net for us to pick and so on, we might use each kind of these tools as well as those the web 2.0 platforms

provided, so as to construct an Open Virtual Learning Community.

**2. Theoretical foundation of knowledge sharing in virtual learning community**

*2.1 The connotation of knowledge-sharing*

Knowledge sharing refers to the individual knowledge, and the organization knowledge is shared with other members in the organization through each sharing methods, simultaneously, it realizes organization's knowledge increment through the knowledge innovation. Therefore, the knowledge sharing should be understood from three level considerations : the knowledge sharing object —knowledge content, the knowledge sharing method —knowledge network, the conference and the team studies, the main body of knowledge sharing—team and organization.

Knowledge is one kind of scarce resource, it belongs to intangible asset of the knowledge main body, but this kind of property does not have the loss, namely, when a person provides the knowledge to another person, the providers will not therefore cause their own knowledge to reduce. If the web cam is regarded as the rational economic man, then it is hard to explain the knowledge exchange event in the Virtual community. The web cam not only provides the knowledge which individual has, but also needs to spend the time and the energy. From the perspective of economics, this kind of paying voluntarily cannot obtain the same value economical repayment immediately as the commodity exchange, it does not tally pursues the rational principle of the personal interest maximization. The society exchanging theory provides the rationale for this kind of knowledge sharing behavior. Among the human beings there are not only the economical exchange relations, but also the relations of society exchange. the theory representative of The society exchanges personage Browe (Blau) think that (4), the economical exchange stipulates the accurate quantity which is waiting for exchanging, but the principle of the society exchanges follows as "a person bestows favor for another person, although it will have one kind of general expectation from the regarding of some kind of future repayment, but its accurate nature beforehand has not made the specific stipulation", this kind of imaginary profit does not have accurate price and quantity, and bestowing favor will trust others to fulfill their duty.

*2.2 The connotation of knowledge-sharing in Open Virtual Learning Communities*

Because of the asymmetry of knowledge and difference of the knowledge structure, each learners have the knowledge blind spots, all people hope that they can obtain the knowledge which they need. Bieber et al believed that the Open Virtual Learning Community includes the explicit knowledge and the implicit knowledge, the former contains the study community documents, the discussing record, the conceptual model and the definition work class and so on, the latter originates from the study community member's cerebrum. Knowledge sharing refers to the different knowledge main body voluntary to transmit and share knowledge process mutually. the knowledge sharing of Open Virtual Learning Community includes two meanings, the first meaning is transmitting and exchanging knowledge mutually among the individual member in the Open Virtual Learning Community, for instance some members raise some questions, other member gives knowledge to solve the questions, or the individual members send the card in the community to pass on their own experiences and the skill knowledge on their own initiative; the second meaning refers to the Open Virtual Learning Community provides the knowledge as the knowledge main body to the member, the member offers the knowledge to the community, the community   shares the knowledge mutually with the members, the concrete manifestation is collecting and reorganizing the knowledge record which the members remained while exchanging for the community, the member inquires some related knowledge on some subject from the community.

**3. The function of knowledge sharing in the open virtual learning community**

The open virtual learning community transforms individual implicit knowledge into the study community's explicit knowledge, then transforms community's explicit knowledge as individual implicit knowledge, so it has achieved the individual knowledge spiral loop. In this process, the explicit knowledge which in the community shared also to the individual implicit knowledge construction vital role. But through knowledge sharing, using the collective wisdom is helpful to enhance learner's strain, innovation ability, it can achieve the effect on the value multiplies through the knowledge share, the function of the knowledge sharing in open virtual learning community mainly displays in the following several aspects:

*3.1 constructing teaching interaction platform, providing resource sharing mechanism*

According to the knowledge sharing rationale, the open virtual learning community constructed a teaching interaction platform for the teaching, the open virtual learning community's knowledge sharing space and time did not limit, it has the cooperation study way characteristic which the convenience development computer network supported. Therefore, research development open virtual learning community knowledge sharing, may provide the resource sharing for the development education for all-around development, to raise student's innovation ability to provide the study space, enables the student not only to study the discipline knowledge, moreover can also master the knowledge acquisition the method, the way, the technology and the skill, focuses in raises ability which the student cooperation realizes as well as innovates.

*3.2 Enhancing the knowledge acquisition , the ability on applying knowledge of community members*

The open virtual learning community can manage the knowledge resources and the knowledge operation process in the community, and promote the connection, the interaction and the conformity of knowledge resources, but open virtual learning community's knowledge sharing can be able to connect isolated islands to a knowledge system, it is advantageous to the community knowledge application and the innovation condition and the environment, thus enhances the learner knowledge acquisition, application knowledge, innovation knowledge ability.

*3.3 promote modern education's progress and knowledge innovation*

Based on the community agreement of virtual Learning, knowledge-sharing of communities is a system made up by link ways of knowledge flow among members of the community, in which the members can obtain knowledge, share and create it. The necessity of its existence is to make use of the creativity and potential, so as that explicit knowledge and tacit knowledge can convert to each other, in order to achieve knowledge innovation and modern education will be promoted at last.

## 4. Constraints of Open Virtual Learning Communities

*4.1 Unreasonable construction of knowledge sharing*

In open virtual learning communities, knowledge owned only by an individual is tacit while the knowledge exposed to each other is explicit. The knowledge obtained in informal studies is usually tacit, however the virtual learning communities lack the cultural atmosphere, learning environment and practical experience for the study of tacit knowledge, which obstructs the transfer, conversion and sharing of tacit knowledge. In the meantime, the construction of a knowledge-sharing model is also influenced when the knowledge-sharing platform is not focused, interactive, innovative and practical.

*4.2 Unsound Organizational system in Virtual learning communities*

Unsound organizational system in virtual learning communities is also one of the reasons why low level of knowledge-sharing forms.

*4.3 Limited technical support in knowledge-sharing*

Knowledge sharing technology supports limited virtual learning community. It is commonly used in the form of publish its own experience of knowledge by topic after members of the community log in. The system automatically records and provides attachment to guarantee members of the community can publish well. In order to encourage members of the community to attend activities in the community, the System automatically records the number which members published or browse files, in the same way to encourage appropriate on how much they participation. This kind of way in knowledge management played a role in the promotion of knowledge members of the community to create and share knowledge with each others, however, there is still some urgent problem in publishing and using of knowledge between members of the community, at first, with the passage of time, organization of knowledge's will be increasing, and the so called simple knowledge management

Creates obstacles for members of the community to get and use knowledge's. Second, members of the community can not be immediately noticed the new knowledge into the knowledge management system in time.

*4.4 Low sense of sharing of community members*

Knowledge management can make use of collective wisdom to enhance the organization's ability and creativity through knowledge-sharing, in which innovation and knowledge sharing is an important tool and a catalyst. Some members of the virtual learning community have no knowledge-sharing community awareness and knowledge of possession is exacted. If the members of the virtual learning community lack shared consciousness, in the study of knowledge cannot meet the demand for knowledge sharing, it may easily lead to the loss of community knowledge value.

*4.5 Limited ability to transform knowledge of members*

The process of cognitive knowledge is also the process of knowledge conversion, which includes of socialization, externalization, combination and internalization. These progresses are interdependent and interrelated. If the support for knowledge conversion of the virtual learning community just stay at the stage that at which the support is independent, it will lead that knowledge increase grows slowly while the resources of community are increasing, which will confuse the scholars. Lacking of ability of knowledge conversion will also affect the knowledge-sharing.

## 5. The optimization of knowledge-sharing model in Open Virtual Learning Community

*5.1 The promotion of the technology in building virtual learning community*

It is beneficial for the activities of knowledge sharing among the members in the virtual learning community to promote the technology in building virtual learning community. And the key element to success of knowledge sharing is to take the technology means which are advanced, suitable and friendly to the member in the community.

5.1.1 To meet the personalized need. Information technology used in knowledge sharing should be satisfied to the various and active demands of the members

5.12 To improve easy-using and easy-learning of the technology

Because of the differences among the member's quality, the information technology put to use in constructing the virtual learning community should be easily to understand and accept. The more acceptable technology is in used, the quicker speed the members comminute with each other, and the more easily the knowledge sharing among the members in the community can be accomplished.

5.1.3 To develop characteristic software for stimulating the members doing more activities in knowledge sharing

For example, virtual community can offer a chatting room or a platform for interactive activities to encourage more discussion, which can realize the knowledge sharing among the members.

5.1.4 To reduce the restrictions of management among the members

It is necessary to cut down the restrictions on the upload, download and sending files in the members on the condition that it won't influence the safety of the community. Hitherto, many communities take a lot of restrictions on transferring the files considering the safety of the sites, which have bad effects on the knowledge sharing activities. If it is cut down, the quantity and quality of the transferring files among the members will improved, and also the entire level for the knowledge sharing.

5.1.5 To satisfied the need of the members in techno ledge

The hardware and software should make sure the ability of transmission and management of information that can approach the members' demand. It's essential to improve the skills of the members of the community, to achieve the perfect match between human and computers, and to make a balance in the skills of members..

*5.2 Establishments of protection mechanisms in knowledge-sharing*

Virtual Learning Community norms of the characteristics of the virtual community has decided to study its binding members of the community weaker than the reality, virtual learning communities more vulnerable members of the flow, which restricts the sharing of knowledge of continuity and stability to the management of more operations Difficulties and thus, a virtual community of knowledge-sharing communities to the main members of the common needs of the inner sense of identity, as well as members of the virtual learning community has internalized the self-discipline and moral principles. This article will define the virtual community regulate as a virtual community on the basis of culture, the rules of the community, reflected in Etiquette comprehensive. Virtual Learning Community norms are: (1) physical standards -virtual learning community managers to develop written rules of social systems (such as community law); (2) invisible norms of virtual learning communities in the process of development gradually the formation of the unique cultural and community-based members of the default of the norms of decency. Virtual Learning Community norms of fairness, cooperation, dedication, innovation and bound by the spirit of each member of the virtual community to share knowledge, in its guarantee, the members of the community in the knowledge-sharing in compliance with certain rules, is more conducive to improving the efficiency of the knowledge-sharing.

*5.3 Raise awareness of members in of the team*

The difference among On-line learning communities, other online learning communities and other web-based learning is platform the system design into a "collective" concept, the learners will not feel "lonely", there is a sense of belonging, the use of "community sentiment" To maintain relatively stable number of study groups, to allow virtual communities really become members of the community attached to the common "spiritual home." First of all, the system will be different according to the learner's interest in learning the organization into a learning organization; the group is full of internal communication and collaboration, team cohesion to the system used to inspire students with appropriate "incentives" to encourage students to play the team spirit of collaboration, to accomplish the common goal of the study. E-learning students in the whole process will be to urge the organization to learn and help. Learners can also be classified according to different groups into a learning team, so that all members of the team through communication and mutual support, by cooperation study, students completed their study goals, then achieve the common goal in the final team so that achieve virtual learning community to share knowledge. Teamwork, knowledge-sharing on individual learners to study the role of support act is enormous, which allows learners have a strong sense of mission and responsibility, exercise personal creativity and self-learners beyond the capacity.

*5.4 Broaden the knowledge-sharing channels*

Those who construct the virtual learning community should try to broaden the knowledge-sharing channels by ways such as on-line discussion forum, blog, Wiki, e-mail, information stations, to make the knowledge-sharing available. But one must firstly master the basic knowledge and basic skills to access on-line resources, know how to operate the browser, reader, player, search engines, download tools. Learners positively take part in a wide range of subject, and the

skills of querying and browsing the information are improved, but also skills of exchanging the information are enhanced.

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# Step off the Misunderstanding Area of "Competition"

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**Abstract**

The article is aimed at discussing China's colleges and universities of the personnel system reform, from the aspects such as the nature of competition, the characteristics of modern management, the nature of human resources management and colleges and universities' morality, is to prove that the universities carry out full internal competition for posts is wrong, and suggest to use the system to restrain or encourage the acts of university teachers rather than competition.

**Keywords:** Competition, Modern management, Condition of competition

In 2000, the College Department of the Communist Party of China Central Committee and the Ministry of Personnel, the Ministry of Education issued a notice on the "implement of deepening the reform of the personnel system of colleges and universities", which pointed out that introducing competitive and incentive mechanism in colleges and universities definitely. And the implementation of this advice has been widely implemented in nationwide colleges and universities.

I think that in market economy, competition is, of course, an indispensable way, but it also has its conditions and regulars. It's wrong to over-emphasis on competition when the internal talents in colleges and universities use it, without respecting the law of competition and considering the conditions, costs and other factors. Carrying out competition in colleges and universities, it reflects the low-level management, although it's good for the managers and simplifies the management work.

First, introducing competition mechanism in the internal of colleges and universities is going against the objective of competition law.

**1. Contrary to one of the necessary conditions— "scope of the competition must be large enough"**

The classical theory of free competition thinks: In order to the operation of competition, a certain number of buyers and sellers is essential, and the more the number of the two parties, the more intense competition. Colleges and universities take the needs of the development of each discipline into account which needs to maintain a reasonable structure of the teacher, with the result the competition can not be carried out extensively within the frame work of the whole school, but only in the disciplines and even professional conducts, The number of teachers in each of the professional is limited, because of the restrictions of the scale of the school and the number of students .When introducing competition within colleges and universities, people from all departments become competitors, it also undermine the unity between the teachers and the department's internal relationships change very complex. As a result, introduction of competition mechanisms in the internal of colleges and universities is clearly contrary to the necessary condition that the scope of the competition must be large enough.

**2. Contrary to the condition that "In order to start to play its role, competition must be in the basically fair environment"**

In this regard, we can be verified form fair theory and competitive model.

Fair theory thinks that, the staff of the Organization have tendency to revalue their own work and gain reward. They not only concern about their own remuneration's absolute value, but also concern about the relative value of their remuneration. Everyone, consciously or unconsciously, may compare the labor they paid and the reward they gained with others, they also compare their own labor income and reward in the past with that of now. When they find their own balance of payments and the proportion of other people's balance of payments equal to the ratio, or an equal of the proportion of their current revenue and expenditure and that of the past, they will have a sense of fairness and strengthen the power of work; otherwise, they would feel unfair, and affect their work enthusiasm. The formula of the content of the fair theory can be expressed as following:

Comparing formula: A reward / input; B reward / input (A represents for their own; B is on behalf of another person)
The comparing results:

A = B, rewards are well-balanced , feel impartial;
A > B, rewards are more than inputs or gains more than others, the reward is too high, have a sense of guilty;
A < B, rewards are less than inputs or gains less than others, fell suffering losses , wrongly ,and indignant.

From the fair theory: the fairness of distribution depends on the sense of subjective judgments and feelings of interested party, and psychological factors play a decisive role. The standard of the fairness of the distribution is often subjective, and varies from person to person, depending on the major party's personality, needs, motivations, values and other factors. At present, the main method of work that colleges and universities reforms is: the teachers' professional ethic, teaching and academic achievements are the basis of appraising teacher post. The academic achievements is the most important and decisive in the three evaluation factors. We do not discuss such an evaluation method is whether or not scientific, in China's environment where academic corruption is very serious, the number and the level of academic achievements is difficult to reflect the academic standards of teachers truly. It determines that in colleges and universities the implementation of fair competition is difficult to do, and unfair competition will inevitably dampen the enthusiasm of teachers.

Competition model assumes that the two persons to compete for the two organizational posts for the boss and staff. Through the establishment of mathematical models and a series of derivation conclud that: the promotion not only depends on the of people's efforts, also depends on the luck factor. If luck occupies a dominant position in the outcome of the decision-making promotion, then the employees will not be promoted to work at it.

These two theories imply: to achieve the purpose of the competition, on the one hand, we need to create a relatively fair environment, on the other hand to maximizely eliminate the influences that the luck factor put on the outcome of competition. In fact, in the implementation of internal competition in our colleges and universities, it is difficult to do that, without a scientific evaluation criteria to evaluate the teachers' academic level and a just academic, scientific research environment, in which case, is bound to lead to unfair competition, which will dampen the enthusiasm of the teachers.

## 3. Competing in the internal Colleges and universities will have many negative effects

The implementation of internal competition in Colleges and universities, would create a large number of negative effects. Mainly: (1) to affect the unity between the teachers; (2) is not conducive to academic and professional development; (3) to frustrate the outcome of a high level academic achievements, because of competition makes academic collaboration between the high level teachers become almost impossible; (4) to enable teachers to assume a heavy psychological pressure which is not conducive to the teachers' learning, teaching and research work; (5) to encourage the academic corruption, in order to produce more results, especially produce "high level " results to achieve school's examination standards, many teachers have become very impulsive, and take a lot of improper means and methods, such as: plagiarize other people's academic results, and make other Latin American relations in order to get scientific research projects.

Second, the over-emphasis on internal competition in colleges and universities goes against the laws of modern management.

In modern society, with the arrival of knowledge economy, various knowledge and technology continue to renew, the division of labor is more detailed, institutions of higher learning within the subject is divided into smaller and teachers' research expertise is more and more narrow and detailed. A study of a topic, often involving many subjects, so it needs for more co-operation to complete. In many cases, teachers rely on the ability of individuals find it difficult to fully deal with a variety of complex information and take concrete and effective action, all of which require further interdependence, interrelated, and cooperation between the university teachers, that is to form a new team , to advocate team spirit within colleges and universities.

Advocating team spirit in colleges and universities, can make its members learn from each other and make up for the personal ability or mental limitations, and through coordinated action, to maintain the ability of colleges and universities to cope with the continuous innovation capacity, so as to avoid leading to internal discord by implementing internal competition in colleges and universities; let's work together towards a same goal, share responsibility and the joy of success; also create a caring atmosphere where the team members are interdependence, so that team members have a sense of belonging, a sense of responsibility and allowing teachers to relax with each other, work with pleasure to form a "family" situation, and show the mutual concern of the people in the same boat.
In short, in modern society, colleges and universities in the in-house should emphasis on cooperation rather than competition, and it is clearly that the introduction of competition within colleges and universities goes against the social development of people to cooperate.

Third, the over-emphasis on internal competition in colleges and universities makes the teachers in the Prisoner's Dilemma.

Most of the books about game theory introduce such a story: when serious warehouse arson occurred, police captured two suspects A and B at the scene. It was in retaliation for the fact that they worked together and set fire to the warehouse, but police did not have enough evidence. As a result, the police imprisoned them separately, come clean with the requirements. If they were admitted arson, will each be jailed for three years; if they were not accountable because of insufficient evidence, they would each only have one year's imprisonment; if one denied and the other confessed, the one who denied would be imprisoned for five years, and the confessor would be released, free from criminal punishment. In this example we can see that only both A and B offenders alliance, not honest,will get the best results; but the police through the introduction of the condition that "a denial and the other honest and willing to testify, then that who deny will have the five-year imprisonment , and confessor would be the release of large, free from criminal punishment", together with the asymmetric information of the two criminals of A and B, so that both A and B offenders become a competitive relationship, and everyone frankly in order to pursue their own interests to the greatest, the result is that everyone had been sentenced to three years in prison, opted for severe punishment. I think the implementation of internal competition in colleges and universities, as this example, make teachers act in the pursuit of personal interest to maximize, not in order to enable colleges and universities to achieve optimal efficiency,and don't complete the purpose of management which is to improve the work efficiency.

Today the social division of labor is more and more detailed, it is necessary to improve the working efficiency of colleges and universities, on the one hand, require the establishment of an effective system and make sure that the appointment of a clear need to be completed during the various indicators, such as establishing the standards separately from the development of a teaching assistant to a professor teaching in class , as well as scientific research should meet ,so that all categories of personnel have a clear understanding of their objectives, and Practically to do a good job in the nature of their work, then the school's personnel department carry out strict examination, according to the results of the examination to make the title and level of employment of the next phase; on the other hand, to improve the quality of managers and management, through their effective management, to mobilize the enthusiasm of their staff, mining the potential things of employees; through bounding the system and management, to improve labor efficiency.

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# Do We Need to Think More

# about Small Business Capital Budgeting?

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**Abstract**

Capital budgeting is one of the most important areas of finance literature. This paper discusses whether the capital budgeting theory of large business is well applicable for the small ones or not. If it is not, further development of theory becomes necessary. This paper conducted detail analysis of the reasons why the development is necessary. Followed by the analysis of some theoretical and empirical studies, this paper suggests specific factors to consider in future researches on capital budgeting theory for small businesses.

**Keywords:** Small business, Capital budgeting, Investment decision

## 1. Introduction

Capital budgeting is one of the most important areas of finance literature. The decision of capital budgeting, or the allocation of fund in assets for a long term, is obvious for both the large and small business. Existing theory of capital budgeting explains the investment decision-making pattern of large businesses very well. This paper discusses whether the capital budgeting theory of large business is well applicable for the small ones or not. If it is not, further development of theory becomes necessary. Followed by the analysis of some theoretical and empirical studies, this paper suggests specific factors to consider in future researches on capital budgeting theory for small businesses.

Understanding the pattern of capital budgeting in small businesses is important. Small business is a significant portion of total businesses in an economy. Also, small business constitutes the starting point for the entrepreneurs. According to Deek (1973), small business is an important asset within an advanced industrial economy. But they cannot make possible contribution for the economy if they are held back by managerial and entrepreneurial limitations. According to FitzRoy (1989), evidences are there to support that small firms are more innovative. Furthermore, it is observed that the overall demand for customized goods and services increase than the increase of mass-produced goods (Carlsson, 1989). Thus, worldwide experience shows that equitable development from economic and social context is enhanced by the contribution of small businesses (Jeppesen, 2005). All these studies indicate that successful small business is important for an economy. And, the success of small business depends on optimal capital budgeting decision. This is why small business capital budgeting demands special attention for complete theoretical development.

This paper is organized in six sections. Fixing up the definition of small business is important and the analysis on it is in the second section. The third section analyzes the theoretical evidence to show how the small business capital budgeting has a different decision-making environment. Empirical evidences are discussed in section four. Section five and six describes the findings, and conclusion plus research implications respectively.

## 2. Definition of small business

Small is a relative term. Whether the size of a business is small or large, is a very difficult question. The purpose of the definition can play role in determining the borderline. Most of the studies on small business capital budgeting used

either number of employees or amount of sales revenues as the attribute to create a line between large firms and small firms. Grablowsky and Burns (1980) and Graham and Harvey (2001) defined small business based on revenue, which is less than $5 million and $1 billion respectively. Danielson and Scott (2006) used number of employee as the differentiating factor. They used the benchmark of 250 employees to define small business. Stanley (1997) used both the number of employee and sales revenue, which are fewer than 1000 employees and less than $5 million revenue. Pattillo's (1981) was exceptional where the small and large are differentiated based on their size of capital investment. However, the differences in the definitions of small business indicate the necessity of developing an appropriate definition that would be useful for this kind of research. Here, Deek's (1973) statement may help as a guideline to determine an acceptable borderline between small and the large: "Small firms are owner-managed. In the small firm the work of the owner is concerned primarily with management or superintendence."

### 3. Capital budgeting in small and large business

The theory of capital budgeting supports Net Present Value (NPV) method most, which involves discounting all relevant cash flows at a market determined discount rate such as the cost of capital. Determination of cost of capital requires the separation principle that requires that the investment decision can be made independent of shareholders' (owners') tastes and preferences. Since the ownership is not readily marketable, separation principle, and thus the market-determined discount rate are inappropriate for closely held and small businesses (McInish and Kudla, 1981). Therefore, there is some degree of complexity and inappropriateness employing existing capital budgeting theory for small business investment decisions.

In case of small businesses, the owner will have to make decisions concerning production, sales, finance and administration without any specialist management support or advice (Deek, 1973), which is not the same at all for large incorporated firms. Danielson and Scott (2007) have worked on the agency problem in small firm investments. Their result shows that agency conflicts affect a firm's investment decisions in different ways before and after the separation of ownership and control.

Therefore, there is a need to address the problem of decision-making in small business, and some scholars have been working in this field. For example, McMahon and Stanger (1995) suggest that small business financial objective function is sympathetic to existing financial thought, but capture complexities arising in small business. They also argue that the small business financial objective function should reflect the kinds of enterprise-specific risk that typically exist in small businesses arising from liquidity, diversification, transferability, flexibility, control, and accountability considerations.

In other words, the capital budgeting process of small business is likely to be different from that of a large business. The size and availability of capital, investment opportunities, and the nature of the decision makers being different for small businesses may partially explain this difference.

### 4. Some evidences

Several researchers have conducted the study of capital budgeting decision-making pattern of small businesses but the number is lower than what is for large incorporated businesses. For example, all of Grablowsky and Burns (1980), Pattillo (1981), Block (1997), Graham and Harvey (2001), and Danielson and Scott (2006) have conducted studies to find the pattern of capital budgeting decisions of small businesses. Although, their sample size was much different from one study to another, their location of research, data, and methodology were almost same (shown inTable 1).

All of these studies used survey methodology. Sample size varied from 65 to 792. Pattillo's (1981) study was unique among these in terms of sample size and data. This study also compared national and multinational firms in USA. In addition to survey data, this study used substantial amount of other data from the operation manuals and specific case studies of the firms in the small sample. Additionally, the chief financial officer of each firms were interviewed very deeply. Therefore, the small number of firms in the sample is justified by in depth analysis of their decision-making process.

In Grablowsky and Burns (1980) study, lack of understanding as well as expertise of the concepts of capital budgeting are the reason behind small businesses less use of modern capital budgeting techniques. Observing that the smaller firms used single techniques, such as, inspection, 'need', or payback for evaluating capital investment proposals, Pattillo (1981) states "Findings of variances from the theory by the sample firms could be useful in determining theoretical gaps and could indicate the most useful future orientation of new techniques or refinements in theory or technique." The findings of these studies are given in the following table. Graham and Harvey (2001) and Block (1997) found more use of payback period method than discounted cash flow methods in small firms. Danielson and Scott (2006) found that investment decision of small and large firms differ and many small businesses do not use sophisticated capital budgeting techniques or do not involve discounted cash flow methods. They rely on gut feel or easy techniques like payback period. They showed that the lack of financial sophistication, assumptions of capital budgeting theory being not true for small firms, size, short operating history, lack of education of the top decision maker, lack of

discretion in investment decision, credit constraints, difficulties in quantifying future cash flow are the possible reason why small firms decide differently in capital budgeting. These results are given in table 2.

## 5. Findings

We have found that there is no well accepted standard definition of small business in the literature that can be used to create the basis of applying the theory of capital budgeting. Still, it is possible to say that the theory of capital budgeting, which is constructed under assumptions related to large incorporated businesses, is not fully applicable for small businesses. NPV is the ultimately suggested method of capital budgeting that involves estimation of cash flows, and the market determined discount rate. Both of these two tasks require expertise and relevant knowledge. Decision-makers in small businesses may lack this knowledge or may find it cost ineffective to hire that kind of expertise. Moreover, market determined discount rate is not possible to find since the market for small business's capital is not liquid, which does not allow thinking about separation of investment and financing decision. Also, the effect of agency conflict, when it is present, on the investment decision, is different for small businesses because of lack of separating ownership and control. Size and availability of capital as well as investment opportunities are also among some other factors contributing to this conclusion.

Some empirical studies done so far have found results demonstrating the inapplicability of modern capital budgeting theory for small businesses. In addition to above, some other reasons found from these empirical studies are, lack of knowledge, cost of hiring outside consultant, low priority of planning, size and availability of capital, size and availability of investment opportunities, tendency of high reliance on gut feel or easy techniques like payback period, short operating history, credit constraints, difficulties in quantifying future cash flow, and limited discretionary alternatives for investments.

## 6. Future research and conclusion

We suggest more development in the theory of capital budgeting in order to integrate the different scenario of small businesses. This study suggests some specific area of development: first, what the definition of small business should be to work on the new development of the theory, second, how the discount rate determination for small businesses should be addressed, and finally, how all other factors of difference to incorporate in the small businesses capital budgeting theory. In fact, it is necessary to test the same decision making pattern in non-US economies, since almost all the studies are US-based. This extension of study would help to understand any additional factor due to difference in development among other economies.

Although small business seems 'small', collectively it is huge and significant for an economy. Many countries are becoming much more serious about developing the small business sector. Understanding the pattern of their investment decision would help to complete the theory of capital budgeting. This, again, may have significant policy implications for the small business development sector.

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Table 1. Details of the empirical studies on small business capital budgeting

| Resear-cher(s) | Title of the Research | Location of Research | Sample Size | Data and Methodology |
|---|---|---|---|---|
| Grablowsky and Burns (1980) | The Application of Capital Allocation Techniques by Small Business | USA | 65 | **Data:** Survey of small businesses **Tools for analysis:** only basic statistical tools |
| Pattillo (1981) | Capital Investment Practices of Small Manufacturers: American versus Multinational | USA and UK based multinationals in USA | 8 firms, 4 Us and , 4 UK-owned multinational | **Data:** Survey of CFOs of small businesses, Operating manuals and specific case studies from the firms were obtained where available **Tools for analysis:** paired comparison method |
| Block (1997) | Capital Budgeting Techniques Used by Small Business Firms in the 1990s | USA | 232 | **Data:** Survey of small businesses **Tools for analysis:** only basic statistical tools |
| Graham and Harvey (2001) | The Theory and Practice of Corporate Finance: Evidence from the Field | USA and Canada | 392 | **Data:** Survey of CFOs in small and large businesses **Tools for analysis:** correlation, univariate analysis, robustness check, etc |
| Danielsn and Scott (2006) | The Capital Budgeting Decisions of Small Businesses | USA | 792 | **Data:** Survey of small businesses **Tools for analysis:** Binomial Z-score, multinomial logit |

Table 2. Findings of the empirical studies on small business capital budgeting

| Resear-cher(s) | Findings |
|---|---|
| Grablowsky and Burns (1980) | a) There were only three firms in the total sample, which used advanced budgeting techniques, and only one indicated that these were used to the fullest extent.<br><br>b) The main reasons are probably management's lack of understanding of these techniques and the costs associated with hiring an outside consultant who is familiar with them. Additional reasons include a lack of the knowledge and staff needed to properly analyze investment opportunities.<br><br>c) Planning, however, tends to be an activity from which the small businessman can see no obvious or direct effect on his profits; therefore, it is often given a low priority.<br><br>d) Careful planning would also make the data needed for capital management techniques more readily available; and, with management's increased understanding, the cost of employing capital management techniques would decrease, resulting in a more efficient and competitive business climate. |
| Pattillo (1981) | a) Support for the linkage of differences in capital investment practices among firms with the ownership nationality variable.<br><br>b) The larger firms in the sample were found to possess formal capital budgets. This difference, however, was felt to be a function of the greater level of capital expenditures in the larger firms. |
| Block (1997) | a) Payback method is still the preferred approach by 42.7 percent of the firms.<br><br>b) Increased use of discounted cash flow methods than that in similar surveys at that time |
| Graham and Harvey (2001) | a) Large firms rely heavily on present value techniques and the capital asset pricing model, while small firms are relatively likely to use the payback criterion. |
| Danielson and Scott (2006) | a) Investment decision of small and large firms might differ. Many small businesses do not use sophisticated capital budgeting techniques or do not involve discounted cash flow methods. They rely on gut feel or easy techniques like payback period.<br><br>b) They showed that the lack of financial sophistication, assumptions of capital budgeting theory being not true for small firms, size, short operating history, lack of education of the top decision maker, lack of discretion in investment decision, credit constraints, difficulties in quantifying future cash flow are the possible reason why small firms decide differently in capital budgeting. |

# Study on the Intensive Production Pattern

# of Equipment Manufacturing Based on Cycling Economy

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**Abstract**

With the development of cycling economy, it is a new requirement to the production pattern of equipment manufacturing. How to implement the sustainable development of manufacturing has become the hot concerned research realm. By elaboration of cycling economy, equipment manufacturing, intensive production pattern, and according to 3R principle of conserving production pattern based on cycling economy, this article revises the traditional production pattern, establishes equipment manufacturing conserving production pattern and its support system.

**Keywords:** Cyclical economy, Equipment manufacturing, Intensive production patterns

To develop the equipment manufacturing, it is significant for implementing the scientific concept of development, adjusting the industrial structure, accelerating socialist modernization, enhancing the comprehensive national power, protecting the national economic and national defense security. However, because of the shortage of global resources, there is a grim challenge to the development of equipment manufacturing. Improving the comprehensive development of equipment manufacturing capacity, responding to the call of national energy saving and emission reduction, achieving the sustainable development is an urgently problem to be solved.

## 1. Concept and characteristics of cycling economy and equipment manufacturing

### 1.1 Content and characteristics of cycling economy

1.1.1 Content of cycling economy

Cycling economy is short title of closed-loop flow of material-based economy. Its meaning is based on ecological laws, using the natural resources and environmental capacity in an environment-friendly way, protecting the environment and developing economy with the minimum cost and higher efficiency and effectiveness to implement the ecological transformation of economic activities. The efficient use of resources and recycle is the core, integrating the cleaner production and comprehensive utilization of waste to resolve the industrial crisis, within the ecological environment carrying capacity to promote economic growth and improve the quality of the economy; it is an inevitable choice to realize the harmony between human and nature.

1.1.2 Characteristics of cycling economy

The characteristics of cycling economy are low consumption, low emission and high efficiency; these features are the objective requirement for the development of equipment manufacturing. Low consumption means less consumption of resources use to achieve the decided production target, that is to say pursuit the least inputs under a certain output. Low emission is in the process of production or consumption, as much as possible to reduce the emissions of waste and reduce pollution sources. High efficiency means that at the certain circumstances of raw materials and energy inputs to achieve the maximum outputs. They are mutual related and constraint; finally promote the whole economy rationalization and efficient development.

### 1.2 Content and characteristics of equipment manufacturing

1.2.1 Content of equipment manufacturing

Equipment manufacturing is a manufacturing that provides a wide range of technologies and equipments to the national economy and defense building. It is the mark of national and regional industrialization level and economic science strength. Relating to the country and the national long-term interests and strategic industry, it is also the tie and vector of advanced science technology in transforming traditional industries, and the basis of high-tech industries and information industry, the important safeguards development of national economic security and military security.

### 1.2.2 Characteristics of equipment manufacturing

The equipment manufacturing is strong foundation, high technological content, difficult development, broad association and strong completed integration. It involves almost every respect of the national economy; the main service area is the important sector of national economy, including machine tool, tool, measuring tool, mold, instrumentation, basic materials industry are the backbone of national economic development, nevertheless the basic equipment type is the core of the equipment manufacturing, which can only be achieved by devoting a lot of manpower, materials and financial resources.

## 2. Status quo and major problems of china's equipment manufacturing

At present, the industrial added value of our country equipment manufacturing in the world is No.4, lower than the United States, Japan and Germany. The problem represents that the overall level is not high.

### 2.1 Low utilization of resource during the production process

Although China became the world's third largest trade nation, the extensive mode of economic growth has not been fundamentally changed. Such an economic growth mode characterizes by high consumption, high emission and low efficiency, resulting in a massive waste of resources and serious environmental pollution. Information shows that the consumption of one dollar GDP that Chinese creating resources needed is about four times than United States, seven times than Germany, 11 times than Japan. Resources utilization is poorly low.

### 2.2 Old and low utilization equipments

Equipment includes both hardware and software. Software refers to technology. There are many core technologies still in the appearance relying on foreign imports, weak in independent development, less original technologies and products, forming a vicious cycle of usher in-fall behind-usher in again. Hardware refers to equipments, many old types of equipment because of high construction and replacement cost, can not satisfy the requirements of technological progress, resulting in some idle equipment, not taking full advantage.

### 2.3 Poor resilience

It performances a long time of Business-to-market response, long new product development cycle and delivery of China-made equipment, failing to keep pace with the speed of product updates both domestic and international market need. Economic efficiency is low, sales profit margins and labor productivity is lower than the entire manufacturing value, in a low-level status.

## 3. Analysis of conserving production pattern

### 3.1 Traditional manufacturing production pattern

The manufacturing is an industry that transforms the available resources (including energy) through the manufacturing process into industrial products or consumer goods for people to use. In the view of resource flow and material form, the traditional production pattern is a "resources-products-pollution emissions" one-way flow pattern. In essence, it is a movement of inefficient use of resources, constantly making a lot of resources into to spam, promoting the number growth of economy by reversing the growth at the cost of natural resources. Traditional manufacturing is a kind of "pollution first, treatment later" pattern of economic growth, including the waste coming from the products production; use and governance become the major source of environmental pollution (Gu, 2007, pp. 65-68). As shown in Figure 1.

### 3.2 Connotation of conserving production pattern

Conserving production pattern is a new mode of production, it abandons the defects of traditional production seriously wasting of resources and pollution, pursuits low consumption, low emission and high efficiency during the whole production process. From the beginning of product design until the end of product life cycle, always in conserving green design, green manufacturing, green flow, green consumption concept, upholds the 3R principle of the cycling economy to organize, produce, circulate, consume, and other activities, thus forms a healthy dynamic development pattern.

### 3.3 Relations between cycling economy and intensive production pattern

Intensive production pattern is an essential requirement for the development of cycling economy and a means of achieving cyclical economy. Carrying out cycling economy is an important way to change the mode of economic development, taking new road to industrialization, realizing energy-saving emission reduction, and fully putting into practice a well-off society. Right now, China is in the process of new industrialization's important stage, cycling economy has become a broad process of society and economic system. During this period, demanding for energy and heavy polluted equipment manufacturing has entered a rapid growth stage. In order to avoid following the developed countries' old mode of "Resources-Products-Waste" in the production process of industrialization, equipment manufacturing must persist in absorbing cycling economy to the development process of new industrialization and establishing a scientific development strategy of cyclical economy, must construct a complete cycling economy system,

and establish a "Resources-Products-Waste-Renewable Resources-Recycle Products" conserving production pattern based on the cycling ecological form.

## 4. Constructing equipment manufacturing production pattern based on cycling economy

*4.1 Necessity of equipment manufacturing's conserving production pattern*

Global economic integration has created new opportunities for the development of manufacturing. However, the development of equipment manufacturing faces constraints such as shortage of resources, seriously waste pollution, the traditional pattern of production can not meet even restrict the development of equipment manufacturing. It is imminent that how can we achieve the vision of a big manufacturing equipment country, construct equipment manufacturing's conserving production pattern, and create core competitiveness.

*4.2 Principle of intensive conserving production pattern*

Intensive production pattern is essentially an ecological economy under the cyclical economy, it follows the development of cyclical economy's "reduce, reuse, recycle" principle (3R principle).

Reduce requires less use of raw materials and energy to achieve the decided production or consumption purposes, from the source of economic activities (not through the end of compulsory treatments) to save resources and to reduce pollution. Reuse requires products less replacements, as long as possible extending the use of the product cycles, the maximum possible to increase the ways and frequencies of products on many occasions, effectively extending the time for strength of products to enhance the utilization efficiency. Recycle is that after products completed the use of functions can become available resources, reducing waste emissions to the maximum, making effort to make the emissions of resourced and healthy, implementing the recycle of resources.

3R principle constitutes the basic ideas of constructing conserving production pattern under cyclical economy. Reduce is the first principle of cyclical economy (Wang, 2006, pp. 60-62).

*4.3 Basic constitutes of equipment manufacturing's intensive production pattern*

Intensive production pattern will overcome the seriously waste energy, mass of pollution and outputs of the traditional mode of production, from every possible aspect to scoop out the greatest efficiency of resources, reduce wastes, achieve sustainable development. Here basic constitutes of conserving production pattern are divided into macro view and tiny view.

Macro view is from the industry environment of the manufacturing, it is mainly relying on the government; the tiny view is from the manufacturing itself angle, in all aspects setting up idea to format an essential element system of conserving production pattern. Conserving production pattern promotes the government and manufacturing business enterprises, even the whole process in circulation and consumption of the supply chain downstream. It takes conserving green designing, manufacturing, circulating and consumption as principle, measures with more conserving standards, enlarges the support strength to conserving production pattern from government, improves the winning factors of enterprises themselves, takes in the whole process with high quality and conserving as target everywhere, pursues and realizes conserving producing. As shown in Figure 2.

*4.4 Support system of the equipment manufacturing's conserving production pattern*

Reflections on a range of issues emerging in the process of the development, China's equipment manufacturing should learn advanced results from abroad manufacturing in the cycling economy's development, follow the requirements of cyclical economy's development principle, and achieve conserving production pattern of sustainable economy development.

4.4.1 Build a social environment for intensive production pattern

To apply and extend conserving production pattern, it must fuse country's economic development strategy together. On the one hand, it is the content of the national economic development; on the other hand the country's economic development strategy guides can promotes and supports the enforcing of conserving production pattern. The government is shouldering a leading role to construct the required environment of cyclical economy's development, its policy-oriented will emollient promote enterprises constructing the circling economy. Government can guide from the economy policy, industry policy, technology policy, tax policy, management policy, finance policy, consumer policy, education policy, and so on, make support policy to conserving production of enterprises; integrate the production pattern and industrial structure of equipment manufacturing, and then format the good social environment to adapt to the development of cyclical economy.

4.4.2 Perfect the legal system

It should strengthen legislation and law enforcement, establish binding standards and assessment system, take conserving production pattern as the equipment manufacturing's production constraints. Only by establishing a sound laws and regulations can make the conserving production pattern into legal track. State should make greater efforts to

encourage, support the expansion of conserving production, cleaner production, comprehensive efficient use of resources, reducing waste generating, recovering and making use of waste in various sectors fully, and more effective legislation to ensure that the concrete executing behaviors of cycling economy to implement.

### 4.4.3 Promote construction of demonstration zone

China has positively at three levels practiced and investigated the enterprise clean production, eco-industrial parks, cities and regions, in the whole country setting up ecological provinces, ecological city at the core of cyclical economy. Demonstration area is still in the early stages of the cyclical economy, still needing strengthened in its theoretical foundation, major enterprises and important position. Especially the regions which the specific gravity is heavy and relatively concentrated areas of equipment manufacturing, should learn experience and lessons from others, progressively organize promoting work and open an exhibition of conserving production in the demonstration zone.

### 4.4.4 Streamline redundant links

In view of the status quo of China's equipment manufacturing, there are many organizational structure, production processes bloated state in enterprises. This organization and production structure to a certain extent makes companies come with impeded the flow of information, products and market demand out of line, high cost of management in the production process. Restructuring or streamlining agencies and links to a large extent can save unnecessary expense, shorten the production cycle, establish rapid reaction market system, and produce marketable products.

### 4.4.5 Promoting clean production

Clean production means continuing use improved design, clean energy and raw materials, taking measures such as advanced technology and equipment, improved management, comprehensive utilization, from the source to reduce pollution and increase the utilization of resources; reduces or avoids the pollutants generated in the course of production, reduces or eliminates hazards during services and products to the human health and environment (Liu, 2006).

It is the micro-economic basis of cyclical economy, manufacturing enterprises as a large body of the use of resources and waste emissions, must implement the national cleaner production laws and cleaner production industry standards, adjust and control the production chain from inputs and outputs of the entire environment, strictly produce according to law organizations, increase technological innovations inputting, and take effective measures to achieve the efficient use of resources, low-emission requirements as much as possible.

### 4.4.6 Taking technological innovation as the guarantee

The realization of the cycling economy can not be separated from technological innovation; technological innovation is the basic conditions for the development of cyclical economy. Energy saving, cleaner production, recycle and the use of resources largely depends on technological innovation. The equipment manufacturing in order to fundamentally realize cycling economy development must increase investment in science and technology, train technology and management personnel actively, improve the system of flexible production, and provide software and hardware two-way platform's conserving production pattern.

### 4.4.7 Taking new technology as the means

New technology is the most effective means to achieve conserving production pattern, which will fundamentally solve the conservation, emission reduction, reuse and other issue in the production processes of resources, products, consumption. For the inputs of conserving production pattern uses conserving green design, takes technologies such as reduction of resources, renewable resources, alternative resources, the maximum to reduce the consumption of resources, develops new, clean, green and pollution-free or low-pollution energy, improves the utilization of resources. For the part of conserving production pattern's process takes the process quality controlling and technologies with pollution reduce, pollution treatment, resources reuse, product life extension, diversification, and others to minimize the volume of waste generated as far as possible, makes full use of the inevitable pollution, uses the secondary resources during the production process, and reduces the supply chain. For the outputs inculcates the concept of green consumption, reduces waste rate, recycles of products, and scoops out the residual value of products as much as possible.

### 4.4.8 People-oriented to exertive people's initiative and creativity

Conserving production pattern requires the talent should not only have a solid foundation, broad range of knowledge, rational knowledge structure, but also should have many non-technical skills such as economic analysis, interpersonal relationships, particularly the collective collaboration capabilities. The nation and region should construct training centre, conduct the business existing engineering technology and management personnel a comprehensive system of training, so that they can adapt to face the coming technological advances and organizational innovation, and establish the conserving production idea as the behavior standard.

4.4.9 Excellent production management system

It takes system theory, information theory and control theory as a guide to be institutionalized, standardized and procedures. It reflects in the management business, management method, production operations, production process, statements documents, data, and other aspects. Production management of institutionalization, standardization and procedures is the foundation of scientific management. Modern production management requirements scientific management, in the management, it should enforce accordance with all rules and regulations, operating standards; all done are evidence-based, rule-based, operating standards, procedures management, realizing quality management objectives transferred into the management process itself, making quality as an assurance to achieve savings.

## 5. Conclusions

From the new requirements coming of cyclical economy's development on the equipment manufacturing, this article aims at China's equipment manufacturing's existing problems, researches and constructs a conserving production patterns of equipment manufacturing, and on this basis puts forward the support system for the construction of equipment manufacturing.

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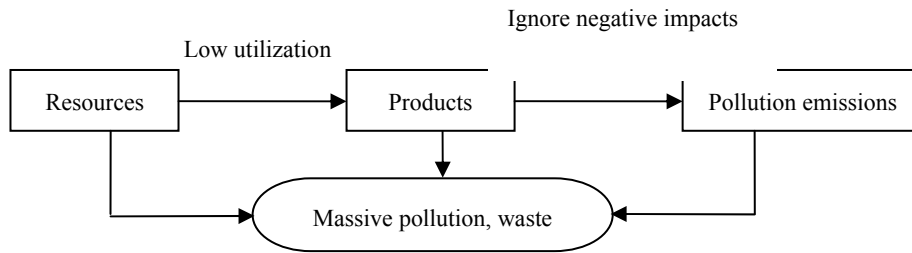
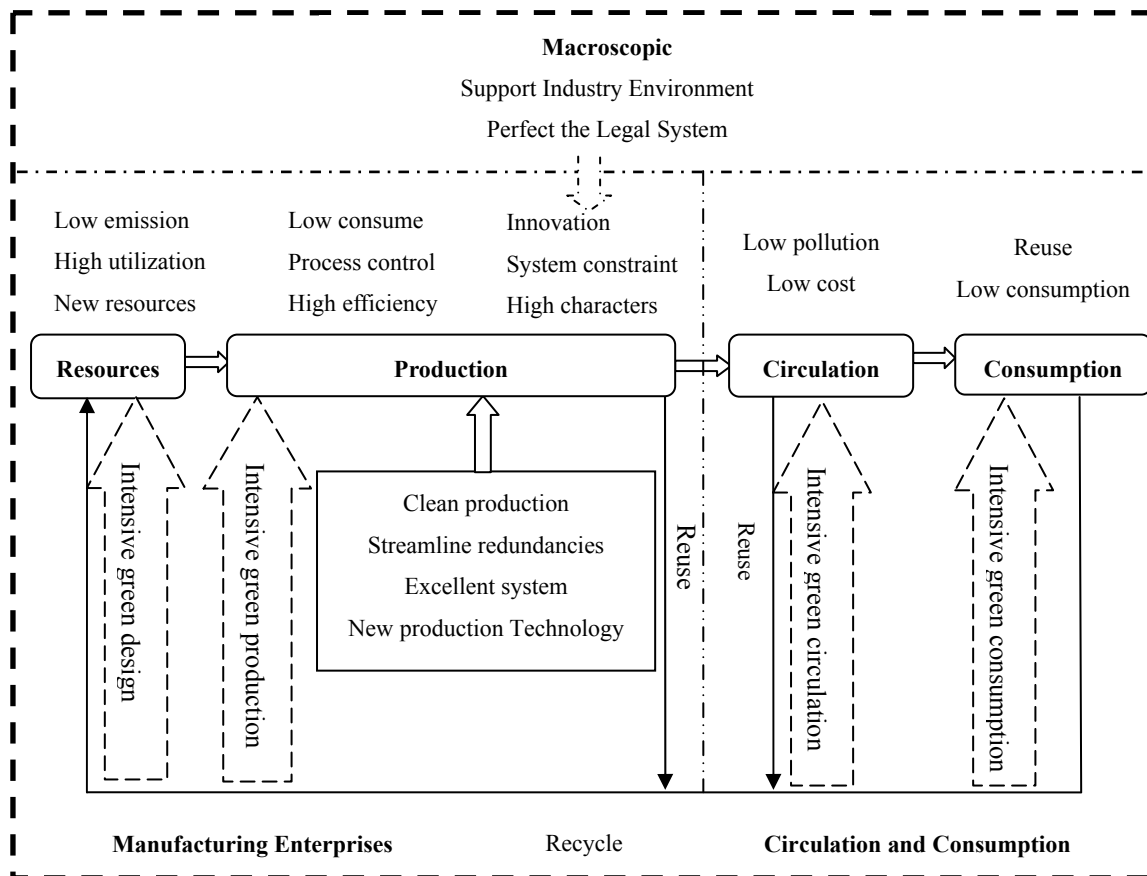Figure 1. Traditional Production Pattern



Figure 2. Basic Constitutes of equipment manufacturing's intensive production pattern

# Corporate Restructuring, Firm Characteristics

# and Implications on Capital Structure: an Academic View

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## Abstract

The fundamental reason for carrying out corporate restructuring is to further enhance the long-term survival of firms through greater efficiency and cost-effectiveness. As a result, firms are bound to conduct financial restructuring as part of their corporate restructuring program. This involves some adjustment on their capital structure as there is a need to have changes on either their debt proportions or equity proportions. This article explores certain critical areas of capital structure. The argument here is based on the life cycle of a company, firm specific characteristics and type of business dimensions. This study also offers a conceptual understanding on capital structure in a given set of factors/variables. It is also postulated here that researchers should look into the possibility of remodeling their work on capital structure.

**Keywords:** Corporate restructuring, Firm characteristics, Capital structure

## 1. Introduction

Corporate restructuring has undoubtedly become a major program for many organizations as it paves ways for greater efficiency and cost-effectiveness. Both corporate and business strategies are currently integrated into restructuring program to yield greater financial performance in both short and long run. The general framework for corporate restructuring comprises of reorganization of assets (acquisitions and sell-offs), creating new ownership (spin-offs, split-ups and equity carve-outs), reorganizing financial claims (exchange offers, leveraged recapitalization, financial reorganization and liquidation) and other strategies (eg joint ventures, LBOs, etc) (Weston, Siu and Johnson, 2001).

Corporate restructuring is intended to either reacting to crisis or to be part of the company's pre-emptive plan for their survival in the industry. Restructuring process is a lengthy and a painstaking one. It presents many challenging tasks and requires analysis of social benefits and costs. The most difficult task is to persuade the most suffered to understand the desirability of the reform efforts (Yoon, 2004). In the mean time, strategic evaluation of re-engineering, restructuring and downsizing policies are perceived as the influential management paradigm. With this, companies are able to fully leverage on their core competences in creating superior competitiveness (Morden, 1997).

Palliam and Shalhoub (2002) found that corporate restructuring could be an impetus for organizational change. Corporate restructuring also positively correlated with companies' long term profitability. Significant cost reduction and increases in market shares are expected to result from corporate restructuring. Companies are to have sound knowledge of their industrial structures which are constantly changing before restructuring their operations. In the light of corporate restructuring, innovative approach is also needed to establish a viable competitive advantage (Proctor, 2001).

In general, corporate restructuring could be viewed as a company's expansionary program which includes mergers and acquisitions, takeovers and green-field investment. On the other hand, its contractionary program could be referring to divestiture, downsizing, down-scoping and the third one which is quite common that is financial restructuring. Thus, the effects of corporate restructuring on financing decision and capital structure in particular cannot be denied.

Financial restructuring obviously involves equity or debt restructuring that has direct influence on capital structure. In short, it can be clearly restated that debt restructuring is a means of conducting financial restructuring program that has effect on a company's capital structure (Miller and Modigliani, 1958; Myers and Majluf, 1984; Majumdar and Chibber, 1999).

Hence, this is a study that makes an attempt to put forward certain critical areas of capital structure that so far have not been rigorously explored but these areas tend to create a significant impact in the manner the literature on capital structure is understood.

## 2. Debt and equity

Debt and equity are the two different sources of funds for a company. As both involve costs to the company, there is a need for the company to choose the right option that minimizes its costs and in most cases, companies tend choose to create the right combination of debt and equity that might result in the lowest costs. Thus, the use of debt and equity proportions are the measurement tools for capital structure. Glen and Pinto (1998) describes that determining debt and equity is an important financial decisions faced by companies. Capital structure is defined as total debt to total assets at book value, influences both the profitability and riskiness of the company (Bos and Fetherston, 1993).

Hence, capital structure concerns the relative proportions of debt and equity financing that helps companies to minimize their overall financing cost (cost of capital). However, lowest cost (discount rate) is actually maximizing their market values (maximizing the present value of dividends). With this view, the discount rate is the cost of capital that can also be formulated as Weighted Average Cost of Capital (WACC).

*WACC = (Proportion of Debt x Cost of Debt) + (Proportion of Equity x Cost of Equity)*

Financial risk refers to an increase in volatility or uncertainty of a company's earnings due to borrowing. Studies indicate that companies without borrowings (unlevered firms) show less fluctuation in their earnings, whereas, companies with borrowings (levered companies) show greater fluctuation in their earnings when there are changes in their financial performance. Hence, some specific implications of borrowing on levered firms could be outlined as follows; borrowings require interest payments that in effect, slash firms' net incomes, interest expenses as fixed costs that increase the volatility of net incomes and thus, affect EPS and borrowings also relatively reduce the proportion of the equity in a company's capital structure and hence, reduce the number of shares outstanding.

## 3. Traditional view and the modern theory

In general, as company's borrowing rises, its financial risk also goes up and this forces shareholders to increase their required rate of return. This in turn causes WACC (discount rate) to go up and hence, reduces shareholder value (present value of dividends).

Let us take a closer look at the traditional view first. The traditional view argues that when gearing ratio is too low, the company loses cheap debt but if its gearing ratio is too high, financial risk together with WACC will increase and subsequently shareholder value will drop. This signifies that when financial risk increases, shareholders will demand high required rate of return. It can be concluded that under the traditional view, to increase debt is welcomed but if it is too high, then the company has to face financial distress. In short, the guiding principle is that debt should be handled with great caution. (Myers and Majluf, 1984; Kester, 1986; Friend and Lang, 1988; Majumdar and Chibber, 1999)

In contrast, the Modern Theory, developed by Merton Miller and Franco Modigliani- MM's Theory (1958), challenged the traditional view by reiterating the fact that capital structure is irrelevant to company value and cost of capital through the process of 'arbitrage'. They argued that value of a company depended on its income stream and the degree of business risk but not debt and equity. Thus, companies can go up to 100 per cent debt financing. MM's propositions can be summarized as follows;

*3.1 MM proposition I (without tax)*

Value of Unlevered = Value of Levered = Operating Income/ $k_e$

$k_e$- required rate of return by shareholders

*3.2 MM proposition II (without tax)*

The rate of return required by shareholders increases linearly as the debt/equity ratio is increased and this is supported by the formula below;

$$k_{eg} = k_{eu} + (k_{eu} - k_d) \frac{V_B}{V_S}$$

$k_{eg}$- $k_e$ of a levered company

$k_{eu}$- $k_e$ of an unlevered company

$k_d$- cost of borrowing

$V_B$- borrowing

$V_S$- equity

*3.3 MM proposition I & II (with tax)*

i. Value of a levered company = Value of an unlevered company + Tax rate x Borrowing

ii. $k_{eg} = k_{eu} + (1-T)(k_{eu} - k_d) \frac{V_B}{V_S}$

iii. Thus, WACC = { $k_{eg}$   x ($V_S / V_S + V_B$ ) }    + { $k_d$ (1-T) x ($V_S / V_S + V_B$ ) }

**4. MM's capital structure theory and risk-return trade-off**

MM's initial model was the classification of firms into 'homogeneous risk classes'as a way of controlling for inherent operating or business risk (Pike and Neale, 2003). Hence, the formula can formulated as follows;

i. $k_{eg} = R_f + (ERm - R_f)$ x Bu x [ $1 + \dfrac{V_B (1-T)}{V_S}$ ]

ii. $k_{eg} = R_f + Bu (ERm - R_f) + (ERm - R_f)$ x Bu x [ $\dfrac{V_B (1-T)}{V_S}$ ]

iii. Bg = Bu [$1 + \dfrac{V_B (1-T)}{V_S}$]

iv. Bu = Bg/[$1 + \dfrac{V_B (1-T)}{V_S}$]

$k_{eg}$- $k_e$ of a levered company, $V_{B\text{- borrowing,}}$ $V_{S\text{- equity,}}$ ERm- market return, $R_f$ – risk free rate of return, Bu- beta of unlevered firm, Bg- beta of levered firm, T- corporate tax

**5. Pecking order theory**

According to Myers and Majluf's (1984), firms prefer to raise capital by internal financing instead of external financing. Assuming that the firm's managers always obtain better information than investors which will generate adverse selection cost and to dominate the cost and benefits so they raise capital from retain earnings, then riskless debt, followed by risky debt and equity. With better information, they can avoid issue equity in order to maximize the market value. The preferences order reflects the costs of different capital financing option. According to Myers and Majluf (1984) and Myers (1984), firms always prefer scenarios' such as internal finance over external finance, safe debt over risky debt, convertibles debt and finally common stocks.

**6. Static trade off theory**

According to Myers (1984), Static trade off theory is the need to balance gains and costs of debt financing. Static trade off theory argues firms will choose the equity and debt financing to balance the costs and benefits of debt in order to achieve optimal capital structure. Optimal capital structure is to maximize the firm value. Firms issue equity when their debt is above the desired target of debt and issue debt when the debt is below the target. Hence, firms issue debt and equity proportionately to stay close to the target if they want to have external financing.

According to the trade off theory, firm will borrow up to the desired target of debts when the benefits of tax shield is offset by the costs of financial distress such as bankruptcy costs and agency costs. The financial distress can decrease the market value of the firm. When firms have the high level of debt and they cannot make the interest payment, they will have bankruptcy cost. The costs of debt were known as bankruptcy cost and financial distress. The costs which associated with issuing more debt were known as costs of financial distress (Modigliani and Miller, 1963). The financial cost will arise when firms issued high level of debt and could not make the debt payment. However, the benefit of debt is tax deductibility of interest payment and it always leads the firms to the use the debt.

According to trade off theory, high profitable firms always have more income of tax shield and those firms can always service the debt without financial distress. Furthermore, other benefit of debt is to mitigate the conflicts of interest between manager and shareholder. Managers have the incentive to waste free cash flow on inferior investments. However, debt financing has always limits the free cash flow available for managers which lead to a control agency problem (Jensen and Meckling, 1976). Subsequently, the company with debt financing will have greater concentration on shareholding because equity is less outstanding. Hence, the conflict of interest between manager and shareholder can be reduced by using debt financing.

**7. Critical review**

Modigliani and Miller (1958; 1963) came out with an advancement in the capital structure by creating a new body of knowledge for understanding capital structure. Obviously, they reiterated that capital structure is irrelevant to company value. The validity and reliability of their theory has been tested by many researchers all over the world. In addition, Modigliani and Miller (1966) claim that industrial classification and other key assumptions are very important to their theoretical model. Despite the criticisms by many researchers, Hamada (1969) and Stiglitz (1974) do support MM's view with regard to irrelevance of capital structure to company value. However, skepticism about the MM's findings remain intact as in the real world, banks do not finance projects up to 100 per cent.

Theis and Casey (1998) carried out a study on a number of companies in the UK. The main focus was made on companies' capital structure and a special focus was on the MM's tax rationale for debt levels. They pointed out that shareholders prefer lower levels of debt and less diversification to reduce the threat of insolvency. Dividends are negatively correlated with debt levels supporting the traditional view that market will respond positively when debt level is reduced.

Titman and Wessels (1988) indicate that costs and benefits are associated with debt and equity financing. However, they failed to prove that future growth, volatility of earnings and firm sizes have the effect on capital structure. Myers (1977) argues that tangible assets (fixed assets) can support a higher debt level as compared to intangible assets such as growth opportunities. Mean time, Thies and Klock (1992) claim that the relationship between earnings variability and financial leverage is ambiguous and the findings are quite mixed.

Wood (2004) revealed that required returns on debt and equity can have 'near-constancy as capital structure varies. He added that there was a need to create a period by period capital structure and required returns as market conditions change across time and projects are financed in arbitrary manner. This means that WACCs tend to differ (change) from time to time with regard to the type of project to embark on as cash flows of one project differ compared to the other. As such, there will be various WACCs in given situations. In fact, capital structure is not required as an input in optimizing the value of debt through the use of FPV (financing present value). In essence, this argument is somewhat correlated with the MM's theory. The pecking order model describes that firms prefer equity financing but evidence shows that they do prefer bonds to stock (Myers and Majluf, 1984). In another study, Stulz (1990) points out that debt levels are positively related to firm company value.

In the mean time, studies were also carried out on finding a relationship between capital structure and profitability. As a result, debt-equity ratio in line with the expectation that equity financing is more profitable (Zoe Frangouli, 2002). For a simple reason, more equity financing reduces shareholders' required rate of return and thus, reduces discount rate (WACC). This in turn increases net present value (NPV). For simplicity, as equity financing increases, interest payment is relatively lower, hence net income will be higher.

Debt-financing is dictated by the company's ownership structure and cost of capital. However, capital structure decision is also dictated by company size, issue size and condition of the security market and it seems the determination of capital structure can be intuitive (Joseph T.L. Ooi, 2000). This could be an expanded version of the traditional view.

In addition, based on the managers' perspectives, a few meaningful conclusions could be made in relation to capital structure. In the context of industry cyclicality, capital structure under the non-cyclical industry seems to be more manageable and is closer to the optimal debt ratio and whereas, capital structure under the cyclical industry needs to be managed on a broad range basis (Groth and Anderson, 1997). However, they suggested that tax shield offers benefits to shareholders and management to make fullest use of the borrowings in lowering its WACC. In addition, lower business risk allows greater proportion of debt to be used in the capital structure. Nonetheless, these arguments do not seem to support the Modern Theory (MM's Theory) in an explicit way.

In another study, it was revealed that financial leverage level tended to differ due to various factors (Al-Sakran, 2001). It was added that in the presence of tax, companies tended to increase their debt financing as this would be beneficial to them in the form of tax shield. This is quite relevant to the MM model but the overall findings are centered to the traditional view as there was a negative relationship between growth and debt financing. This indicates that (as propagated by the traditional view) when debt financing rises, risk also increases, shareholders' required rate goes up, need for higher dividends, thus lower retention ratio and this causes lower growth.

Boateng (2003) showed size of the Joint Venture (JV) and type of industry can have effect on capital structure. The result of the industry effect on capital structure also indicates that firms in textile, building and construction, mining and exploration have a higher gearing compared with firms in food processing, agriculture, financial services, automobile and transport. He added that perceived risk and tax laws would be considered as factors that tend to influence the capital structure. This signifies that companies are quite opportunistic to fully leverage on borrowings but not taking borrowings excessively. Harris and Raviv (1988) describe that debt forces the managers to liquidate non-profitable operations if cash flows are poor. Barclay, Smith and Watts (1995) prove that there is a positive relationship between leverage and size of the earnings increase.

The mixed findings refer to either positive or negative relationship between leverage and profitability. According to Stulz (1990), the debt can be the positive and negative effect on the firm value. The effect of debt on the firm value depends on the growth opportunities. Therefore, debt is positive related to the value of a low growth opportunities firm and the debt is negative related to the value of a high growth opportunities firm. Mcconnell and Servaes (1995) stated that the correlation between leverage and performance is negative for high growth opportunities firm and positive for low growth opportunities firm. The measurement of performance of Mcconnell and Servaes (1995) is Tobin's Q. Then,

Jung, Kim and Stulz (1996) also have the results that consistently related to them in which the influences of debt on the firm value are depend on the firm growth opportunities.

In addition, Abor (2005) found that the mixture result of Ghana firms showed significantly positive relationship between ratio of short term debt to total assets and profitability. Then, Abor (2005) also found that the ratio of total debt to total assets is positively related to profitability. However, the ratio of long term debt to total assets is negatively related to profitability which was measured by Return on Equity (ROE). Thus, methods used do have influence on capital structure studies.

Riddiough (2004) argues that MM theory hardly exists but however, the right combination of debt and equity will minimize WACC. As transaction costs and conflict between owners and lenders generally increase as a result of higher gearing, he suggested that supplemental financiers (subordinated debt, convertible debt) could be allowed to leverage on the optimal capital structure. The success of this approach is very much dependant on the perceived risks and transaction costs. Hence, he pointed out that equity financing would still be favourable and again it is favouring the traditional view. Harris and Raviv (1991) provide a comprehensive literature on capital structure and the findings well spread to the two main views.

## 8. Argument

In spite of the many studies carried out on capital structure, it has been noted that very few studies attempted to challenge the traditional view and further explore the applicability of the MM's view given a specific business environment with some specific firm characteristics. Many researchers get complacent with their findings especially when their findings go in line with the traditional view as a result of the corporate restructuring program and thus the old mind-set still seems to be more prevalent. However, it is evident that companies have started engaging themselves in relatively higher gearing operations though this will result in higher shareholders' required rate of return and effectively higher cost of capital but via tax deductibility, greater profitability could be achieved ( Boateng, 2003; Al-Sakran, 2001). In short, as argued earlier, the life cycle of a company, firm specific characteristics and type of business environment will have impact on capital structure (Wood, 2004; Groth and Anderson, 1997; Al-Sakran, 2001; Boateng, 2003). Thus, it should be pointed out that coupled with the firm characteristics (size, growth, etc), the business dimensions (business environment) in which companies are operating could give a significant impact on capital structure. These business dimensions could be viewed either global dimension (global companies) or regional dimension (regional/local companies), though not rigorously discussed in finance, however, this is an important as aspect to consider (etc Doz, 1986; Tor, 1995) in global investments. Hence, these dimensions might split the discussions of corporate restructuring, debt restructuring and the implications on capital structure where different results could be expected.

The basic fundamental argument is that higher debt results in relatively lower equity and lower dividends but retained earnings (retention ratio) which will in turn push up the company's sustainable growth. Thus, higher debt results in higher growth assuming the company's business risk remains the same. And, firm's level of growth will tend to have impact on its decision on the use of debt for its financing activities and this will in turn influence its performance as well (Stulz, 1990; Mcconnell and Servaes, 1995;   Mcconnell and Servaes, 1995; Kim and Stulz, 1996; Abor, 2005). The current literature is very much dominated by the input of large companies mainly from the global dimension (US and European companies) which are relatively much larger than the companies in the regional dimension (e.g. developing nations).

Thus, these two groups tend to have different 'tunes' of growth. Practically, global companies are in the maturity stage will have lower growth as compared to regional companies which are striving for international expansion will tend to have higher growth. As firm growth level has its own significance on capital structure, there is a need to get the current literature incorporated with how companies in regional dimension should adjust to their capital structure when they are confronted with different levels of growth opportunities.

The main argument in this study is, while the need to adjust capital structure for greater profitability remains intact, these companies however, should consider the effect of their existing growth level (whether high or low), so that optimality in their capital structure could be achieved and their investment decisions will be more fundamentally sound. Hence, firm growth should be taken as an important moderating variable.

Besides growth, according to the trade off theory, firm will borrow up to the desired target of debts when the benefits of tax shield is offset by the costs of financial distress such as bankruptcy costs and agency costs. The financial distress can lower the market value of the firm. When firms have the high level of debt and they cannot make the interest payment, they will have bankruptcy cost. The costs of debt were known as bankruptcy cost and financial distress. The costs which associated with issuing more debt were known as costs of financial distress (Modigliani and Miller, 1963). The financial cost will arise when firms issued high level of debt and could not make the debt payment.

However, the benefit of debt is tax deductibility of interest payment and it always leads the firms to the use the debt. It

should be noted in the context of regional dimension mainly involving Asian companies, company size does matter as vulnerability to 'economic shocks' and difficulty for long-term survival (as compared to US and European companies) are always the main aspects to look into (Thorpe and McCaffer, 1991; Langford et al., 1993; Spencer and Winch, 2002, Chan, Tam and Cheung, 2005). Therefore, the calculation of WACC of these kinds of companies should not be static or fixed for a long period as their exposures in the business environment tend to change from time to time. However, the period of short-term and long-term must first be clearly defined and constructed to reflect the real dilemma faced by the companies and this could even be extended to type of industry.

Another important question is that how frequent these companies should review their WACC to reflect the true or actual cost of capital. This is essentially important as most companies would have either overstated or understated WACC (Note1), if they were to adopt a fixed WACC. This tends to give misleading information on their Investment Opportunities Schedule (IOS) for various stages of operating cycle and also causes disastrous investment decisions in cases where firms are faced with economic shocks. Hence, the construction of WACC must vary in accordance with the life cycle of company in a given business environment.

## 9. Conclusion

To some extent, it is also evident that the traditional view has been greatly devastated by the 'modern practitioners'. Instead, they do not mind having debts as high as possible for greater sustainability and at the same time reaping tax rebates to the maximum. As this practice would trigger many researchers therefore, there must be some models to explain the effects of firm's level of growth opportunities and operating cycle on its decision on the use of debt as part of its strategy to minimize financing cost. Hence, this study is expected to add more value on the applicability of the traditional and MM theories on capital structure.

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**Notes**

Note1. Weighted Average Cost of Capital ((Proportion of Debt x Cost of Debt) + (Proportion of Equity x Cost of Equity)

# Estimate the Rationality of Spatial Structure of Beibu Gulf (Guangxi) Economic Zone and Analyze the Agglomeration Trend

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**Abstract**

On Aug. 10th, 2006, Beihai hosts the First City Cooperation Summit of Beibu Gulf (Guangxi) Economic Zone. It discusses and approves the *"4+2" City Cooperation Framework Agreement of Beibu Gulf (Guangxi) Economic Zone*. Along with the formation of Beibu Gulf (Guangxi) economic zone, its spatial structure will inevitably turn into an export-oriented spatial structure. The new characteristics of regional economic spatial structure rely in: forming a "pole-axis" spatial pattern showing initial city leveled system; the network system and the "pole-axis" system without perfect "driving axis"; with lots of spatial units. In future, the Beibu Gulf (Guangxi) economic zone will undoubtedly become a new important place of population and industrial spatial agglomeration.

**Keywords:** Beibu Gulf (Guangxi) economic zone, Spatial structure, Agglomeration, Diffusion

## 1. Present spatial structure of Beibu Gulf (Guangxi) economic zone

### 1.1 The outline of city Urban hierarchical systems comes into being

Regional Urban hierarchical systems are still an absence. The order of levels is imperfect. Presently three levels come into being. The first level is the largest city Nanning, being the capital and the central city of Guangxi, and also the economic and cultural center of the Beibu Gulf (Guangxi) economic zone, which is irreplaceable. The second level includes Qinzhou, Beihai, and Fangchenggang. As the front port cities in Beibu Gulf, the three cities possess great regional advantages, what are also important nodes of China-ASEAN Free Trade Area. The third level is Zuolin and Chongzuo, considering the transportation and logistics, and the effects of Beibu Gulf (Guangxi) economic zone.

### 1.2 The spatial structure of "pole-axis" system

In Beibu Gulf (Guangxi) economic zone, the central city is Nanning. Taking Nanning as the starting point, connect every node city in line in the region heading toward southwest, south, and southeast. By comparing the spatial changes (in Table 1) of GDP per capita in successive two years, 2006 and 2007, we find that the GDP per capita in the southwest and southeast axes is declining, while the GDP per capita in the south axis is rising. In Fangchenggang and Beihai, the GDP per capita is even higher than that in the central city Nanning. That is a thoughtful phenomenon. It proves the ports, due to their sea channels, in the south axis possess regional advantages over Chongzuo and Yulin where there is land as barriers.

### 1.3 The extensiveness of axes of "pole-axis" spatial structure system needs to be strengthened

The formation of "pole-axis" system's spatial pattern has two tendencies, namely spatial agglomeration and spatial diffusion. The spatial agglomeration and spatial diffusion of regional economy have to rely on the transportation line, energy-supply line, and telecommunication line in axes of "pole-axis" system. The infrastructure turns into the "axes" that is capable of agglomeration and diffusion.

(1) The fluency of land transportation net in the region needs to be improved

The fluency of land transportation net in Beibu Gulf (Guangxi) economic zone needs to be improved. It does not realize a fluent transportation between cities. In most cities, the logistics has to depend on roads in cities. Highways can not connect all cities, and the land transportation circular net is imperfect in the region. The land international road is too single and the highway is too short, not mention the railway.

(2) The spatial agglomeration of seaside port cities in the region needs to be improved

Qinzhou, Beihai, and Fangchenggang are important port cities in Beibu bay, and also important channels for extensive Beibu Gulfeconomic cooperation. Whether Guangxi occupies a position in China-ASEAN Free Trade Area or not, the

sea lines toward the south are vital.

Qinzhou, Beihai, and Fangchenggang, as the land nodes at the end of axes of "pole-axis" spatial structure, and also the starting points of sea lines, do not possess strong infrastructure and can not catch up with the regional economic development. Without realizing an organic combination of reasonable industrial structure and regional infrastructure, and generating enormous spatial agglomeration effects, we can not establish the optimal spatial structure of the "pole-axis" system, what will further affect the overall regional economic development.

**2. The specialized analysis on cities, the units of Beibu Gulf regional spatial structure**

*2.1 The spatial node and driving axis*

Beibu Gulfnow has five radiate pole-axes starting from Nanning. The pole-axes connecting the core cities form the spatial net system in scale. The spatial node cities at the axes of "pole-axis" system firstly generate the agglomeration effect. Social economic factors centers on the "pole". Meanwhile, the "axes" (infrastructure) connecting nodes impose strong economic attraction and cohesion on neighbor regions. It may form "driving axes" for economic development.

The "driving axes" for Beibu Gulf(Guangxi) economic zone include three classes. The first-class has three axes, namely Nanning → Fangchenggang, Nanning → Qinzhou, Nanning → Beihai; the second- class has one axis, namely Nanning → Yulin; the third-class has one axis, namely Nanning → Chongzuo.

*2.2 The specialized spatial agglomeration units under new conditions*

Along with the fast industrialization of Beibu Gulf (Guangxi) economic zone, industrial activities tend to agglomerate toward specific spaces, including industrial development zone, labor-intensive machining enterprises, seaside city machining, and manufacturing industry band.

(1) Industrial development zone

In 2007, the industrial development zones in Beibu Gulf (Guangxi) economic zone, mainly Nanning, Beihai, Qinzhou, and Fangchenggang, realize the gross industrial output value 52.05 billion RMB, rising 46.8%, and the industrial value-added 16.63 billion RMB, increasing 35.0%. The contribution rate of value-added to regional industry reaches 47.1%, pulling a rise of 14.5%. The rise of gross industrial output value and value-added is respectively 10.4% and 8.5% higher than the industry in the whole zone. The GDP of the industrial development zones account for 8.84% of the total GDP of Guangxi. The industrial zones (development zones) have already turned into places with more enterprises. The most enterprise-intensive regions chiefly include Nanning, Beihai, and Qinzhou.

(2) Seaside city machining and manufacturing industrial cluster

In Beibu Gulf (Guangxi) economic zone, the seaside city machining and manufacturing industrial cluster mainly centers on Beihai, Qinzhou, and Fangchenggang. In 2007, cities in Beibu Gulf(Guangxi) economic zone realize large-sized industrial value-added, 38.587 billion RMB, increasing 30.5%, 4% faster than the average increase of the zone. Its contribution rate to the large-sized industrial growth reaches 29.5%, pulling an industrial rise of 7.9%. Here, the large-sized enterprises whose contribute rates to gross industrial output value exceed 1% are Guangxi Wanxin Steel Co. Ltd., Guangxi Dongyou Bitumen Co. Ltd., Ocean Food & Oil Industrial (Fangchenggang) Co. Ltd., and Beihai Galaxy High- Tech Industrial Stock Co. Ltd. These enterprises realize gross industrial output value 14.1 billion RMB, increasing 73.1%. The contribution rate to large-sized industrial growth is 4.9%, pulling an industrial rise of 1.8%.

Take Beihai, and Fangchenggang for example. In 2007, the large-sized industry realizes accumulatd output value 18.417 billion RMB in Beihai, increasing 39% than last year, realizing the industrial value-added 5.935 billion RMB, increasing 37.08% than last year. In Fangchenggang, the large-sized industrial enterprises realize gross industrial output value 16.097 billion RMB, increasing 64.9%, accounting for 87.6% of the city's large-sized industrial output value, pulling a large-sized industrial output value rise of 55.6%.

Beihai, Qinzhou, and Fangchenggang locate the south of Beibu Gulf (Guangxi) economic zone. The distance between them is short. However, due to the market guidance and regional cooperation, the three cities form special micro spatial structures respectively in their regions. In recent years, the industrial clusters in the three cities achieve the agglomeration to a great degree. Many industries are developing into complex economy instead of resource economy, such as the high-tech telecommunicating equipment, computer and electronic equipment manufacturing, medicine production, electronic machine and equipment manufacturing in Beihai, the petrochemical, paper making, energy, grain and oil machining, and metallurgy industry in Qinzhou, the edible crop oil processing, sugar refining, steel, and feed processing in Fangchenggang. All these industries make best use of the regional advantage of seaside, occupying a relatively large share in market.

The location of Beihai, Qinzhou, and Fangchenggang determines their outward spatial extension. They will actively meet the inland industrial transfer. Whether the construction of port infrastructure and logistics base can satisfy the seaside industrial development is the key. Beihai, Qinzhou, and Fangchenggang, as the terminals of land roads in Beibu

Gulf(Guangxi) economic zone and also the starting points of sea lines, have irreplaceable effects as "driving axes" in space.

## 3. The rationality evaluation of the spatial agglomeration in Beibu Gulf (Guangxi) economic zone and the agglomeration trend

### 3.1 The people-land relationship in Beibu Gulf (Guangxi) economic zone

The Beibu Gulf (Guangxi) economic zone has the land area of 42,5000 square kilometers, the maritime space of 129,3000 square kilometers. Till late 2005, the population reaches 12.3 million, occupying 25% of the municipality's total population. The gross production value is 120.53 billion RMB, accounting for 29.6% of the municipality's gross production value. Considering the development of transportation, logistics, and ocean industry, in June, 2006, Guangxi Zhuang Autonomous Region takes the transportation and logistics of Yulin and Chongzuo into the programming and construction of economic zone, forming a "4+2" pattern. The land area of economic zone becomes 72,700 square kilometers, occupying 30.7% of the municipality's land area. In late 2005, the population in the economic zone reaches 20.53 million, accounting for 42% of the municipality's total population. The gross production value reaches 171.27 billion RMB, accounting for 42% of the municipality's gross production value. The land area of the economic zone is 0.76% of the national land. The population of the economic zone is about 1.57% of China's population. And the GDP of the economic zone is about 0.93% of national GDP. These numbers illustrate that the uprising economic zone has great potentials with wider development spaces.

It is well-known that plain and basin are right for economic development and city construction due to the favorable climate. Guangxi locates in the southeast edge of Yunan-Guizhou Plateau, sloping from northwest to southeast geologically. It is surrounded by hilly lands and looks like a basin. Therefore, it is also named as "Guangxi basin". The landform of Beibu Gulf(Guangxi) economic zone is various, including plain, basin, hills, shallow sea, and beach. The Beibu Gulf (Guangxi) economic zone, centering on Nanning, Beihai, Qinzhou, and Fangchenggang, includes Nanning basin, Qinzhou plain, Hepu plain, and Bobai plain. Therefore, the Beibu Gulf (Guangxi) economic zone is the most appropriate lands for developing agriculture, industry, and city construction in Guangxi and even in China. In addition, Beibu Gulf (Guangxi) economic zone includes amounts of ocean areas, with the shallow area of 6,488 square kilometers, the beach area of 1005 square kilometers, and the ocean breed aquatics area of 614 square kilometers. So, the legal confiscation of farmland by non-agricultural construction in Beibu Gulf (Guangxi) economic zone can be complemented by developing beaches.

In the perspective of population agglomeration, Beibu Gulf (Guangxi) economic zone will become an important population and industry agglomeration region in China. At present, the population density in Guangxi is far less than that in the developed region, such as the Peal River Delta in south China. In Guangdong province, Guangzhou and Shenzhen have largest populations. In 2005, the population density in the two cities is respectively 1227 people per square kilometer, and 4239 people per square kilometer. Even for Huizhou (332 people per square kilometer), Zhuhai (839 people per square kilometer), and Zhanjiang (536 people per square kilometer), the population density is higher than the average of Guangxi. In 2005, the population density of Guangxi is 208 people per square kilometer. Along with the improving industrial agglomeration in Beibu Gulf (Guangxi) economic zone, more and more people will rush into cities. Therefore, the Baibu bay (Guangxi) economic zone will become a national agglomeration center in China.

### 3.2 Analyze on industrial agglomeration and spatial diffusion in Beibu Gulf (Guangxi) economic zone

In economic development, the dots on the "driving axis" mentioned above are cities, which can agglomerate most social economic factors and form industrial cluster band. The "driving axis" connecting cities has strong attractive effects and cohesion on neighbor regions. Social economic equipments exert a diffusing effect on neighbor regions by products, services, networks, and technologies. The material and non-material factors, including the diffusing industries, technologies, and information, can impact neighbor regions and generate new productivity, forming new industrial cluster band.

Since 1995, the economic space of Guangxi keeps in enlarging. The rise of population is far slower than the expansion of economic space. In 1995, the total investments in Guangxi are 38.295 billion RMB. In 2006, the number is 224.657 billion RMB, being 5.86 times of 1995. In 2006, the total investments of cities in Beibu Gulf (Guangxi) economic zone are 64.991 billion RMB, accounting for 28.93% of total investments of Guangxi. Till late 2006, the population of Beibu Gulf (Guangxi) economic zone is 6.114 million, being 13.03% of the total population of Guangxi.

The investments of cities at the "driving axis" are far less than that of cities in China's developed regions. The economic capacity of these cities is not close to the limit. And the contribution rate of the city cluster to national accumulation is lower than that in China's developed regions. In the future, for a long period, Beibu Gulf (Guangxi) economic zone is the main space for industrial and population agglomeration.

For the city cluster of Beibu Gulf (Guangxi) economic zone, the proportion of non-agricultural population is relatively larger, but the proportion of non-agricultural industries to GDP is relatively smaller, what will directly affect the

industrial agglomeration, and will exert negative effects on the formation of "sub-driving axis". In other words, only when a greater agglomeration happens in the first "driving axis" and amounts of people and economic unit center towards the "driving axis", forming an intensive industrial band, can it poses the "sub-driving axis", forming the spatial structural system signaled by the "pole-axis" network.

In Beibu Gulf (Guangxi) the foremost city Nanning realizes the GDP 62.461 billion RMB in 2006, accounting for 12.94% of the GDP of Guangxi. The social fixed assets investments of Nanning value 34.812 billion RMB, being 15.5% of Guangxi's total social fixed assets investments 224.567 billion RMB. The contribution of Nanning to Guangxi is relatively lower. For Beihai, Qinzhou, and Fangchenggang in Beibu Gulf (Guangxi) economic zone, the proportion of non-agricultural population to the total population of the city is respectively 49.16%, 16.01%, and 28.23%. These data show that the city cluster in Beibu Gulf (Guangxi) economic zone has a lower degree of industrial agglomeration, lower social contribution rate, and higher proportion of non-agricultural population, what can also serve as motives for future industrial agglomeration in Beibu Gulf (Guangxi) economic zone.

To evaluate the degree of spatial diffusion and population and industrial agglomeration in one region, we must know whether there are interconnecting city areas in the region. According to the definition of index system advanced by Xuwei Hu, Yixing Zhou, and Chaolin Gu, the basic regional unit for interconnecting city area in statistic is county. For each county in one region, if the population $\geq$ 200,000 people, the proportion of non-agricultural industries to GDP $\geq$ 75%, and the proportion of non-agricultural labor power to total social labor power $\geq$ 60%, all these counties are neighbors in the region and have interconnections, this region will be named as the interconnecting city area.

In Beibu Gulf (Guangxi) economic zone, all main cities include 22 counties and towns totally. These counties and towns have irreplaceable effects on regional economy, what are also key factors for the uprising of Beibu Gulf (Guangxi) economic zone. At present, among all 22 towns and counties, none of them achieves those indexes mentioned above. Only the county Binyang and Luchuan, the populations and proportions of non-agricultural industries to GDP are close to or reach the standards. For other counties and towns, the indexes are still at a lower level.

Beibu Gulf (Guangxi) economic zone only takes the first step. Its city scale is small. And the capability of collecting wealth is weak. According to experiences of developed countries in world, an inevitable and objective fact is that people move toward seaside and large city cluster. In future, cities in Beibu Gulf (Guangxi) economic zone will extend toward the city cluster and city economic band. Guangxi must insist on giving priority to the development of interconnecting city band. And the precondition is to expand the county economic space. Beibu Gulf (Guangxi) economic zone will definitely turn into a new important place for population and industrial spatial agglomeration in China.

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Table 1. The changes of GDP per capita in the pole-axes centered on Nanning in 2006 and 2007

| Pole-axis | Changes of GDP per capita    RMB per capita |
|---|---|
| The southwest pole-axis from Nanning. | Nanning (11057, 13071) Chongzuo (6566, 8366) |
| The south pole-axis from Nanning | Nanning (11057, 13071) Qinzhou (6000, 7107) Fangchenggang (11872, 14764) Beihai (12225, 13252) |
| The southeast pole-axis from Nannign | Nanning (11057, 13071) Yulin (5998, 6908) |

Data source: Guangxi Statistical Yearbook 2006, Guangxi Statistical Yearbook 2007.

Table 2. Main industrial development zones and the industries in Beibu Gulf(Guangxi) economic zone

| Industrial zone (development zone) | Grade | Main industries |
|---|---|---|
| Nanning high-tech industrial development zone | National | Biology engineering and medicine, electromechanical Integration, electronic information, auto parts, modern agriculture |
| Nanning economy & technology development zone | National | Chemical, auto parts, aluminum processing, sugar refining, biology engineering, electron, |
| Nanning overseas investment zone | Municipal | Medicine, machine production, tissue paper, agricultural by-product processing, food production |
| Nanning seaside economic corridor development zone | Municipal | Biology medicine, machine, modern logistics, color metal Feed, medicine, building materials, machine processing, real estate |
| Nanning Dashatian economic development zone | Municipal | Real estate, scientific research & education, commercial catering, new urban industry |
| Nanning Xianhu economic development zone | Municipal | Biology medicine, food processing |
| Nanning Liujing industrial zone | Municipal | Electron, medicine, food safety, textile, building materials, paper making, aquatic product processing |
| Beihai industrial zone | Municipal | Electronic information, biology medicine, new materials, energy-saving and environment protection, subtropical agriculture |
| Beihai high-tech industrial zone | Municipal | |
| Beihai overseas investment development zone | Municipal | Chemical, marine product processing, environment protection |
| Beihai export & machining zone | National | Electronic information, precise machine, biology medicine, import-export goods transportation |
| Qinzhou economic development zone | Municipal | Petrochemical, energy, grain and oil processing, phosphor chemical, biology medicine, color metal, bitumen processing |
| Qinzhou Hedong industrial zone | Municipal | Agricultural and marine product deep-processing, textile clothing, biology engineering, electronic processing |

Data source: http://www.gxjmw.gov.cn/

Table 3. The total population and population density in Beibu Gulf(Guangxi) economic zone

| City | Total population (10,000 people) | Land area (square kilometer) | Population density (people per square kilometer) |
|---|---|---|---|
| Nanning | 671.89 | 22112 | 304 |
| Beihai | 152.06 | 3337 | 456 |
| Fangchenggang | 82.21 | 6181 | 133 |
| Qinzhou | 348.56 | 10843 | 321 |
| Yulin | 609.31 | 12838 | 475 |
| Chongzuo | 233.20 | 17351 | 134 |

Data source: Calculated from China Statistical Yearbook 2007. (This table is based on data of all cities.)

Table 4. The investment/population conditions of cities in Beibu Gulfin 2006

| City | Regional GDP(10,000 RMB) | Total social investment (10,000 RMB) | City's total population (10,000 people) | Non-agricultural population in city (10,000 people) |
|---|---|---|---|---|
| Nanning | 6246072 | 3481191 | 254.86 | 130.81 |
| Beihai | 1226169 | 635333 | 56.92 | 27.98 |
| Qinzhou | 1223859 | 831814 | 124.85 | 19.99 |
| Fangchenggang | 823038 | 529696 | 49.13 | 13.87 |
| Yulin | 1401258 | 877511 | 91.31 | 21.21 |
| Chongzuo | 434008 | 143559 | 34.33 | 8.83 |
| Total | 11354404 | 6499104 | 611.4 | 217.08 |

Data source: Guangxi Statistical Yearbook 2007. (The table is based on data of municipal districts.)

Table 5. The proportion of population/industry of counties and towns in Beibu Gulf(Guangxi) economic zone

| City | County/town | Population (10,000 people) | Proportion of non-agricultural industries to GDP (%) | Proportion of non-agricultural labor power to total social labor power (%) |
|---|---|---|---|---|
| Nanning | Wuming county | 66.1 | 59.5% | 25.08% |
| | Long'an county | 37.8 | 59.12% | 0 |
| | Mashan county | 51.4 | 65.53% | 44.1% |
| | Shanglin county | 47.4 | 54.75% | 8.89% |
| | Binyang county | 100.7 | 73.84% | 30.23% |
| | Heng county | 113.7 | 64.2% | 27.54% |
| Beihai | Hepu county | 95.1 | 65.15% | 38.23% |
| Fangchenggang | Shangsi county | 21.5 | 62.46% | 28.27% |
| | Dongxing town | 11.6 | 71.88% | 40.83% |
| Qinzhou | Lingshan county | 141.1 | 63.07% | 27.27% |
| | Pubei county | 82.7 | 61.6% | 42.99% |
| Yulin | Rong county | 76 | 66.57% | 45.34% |
| | Luchuan county | 93.5 | 75.4% | 47.10% |
| | Bobai county | 156.2 | 53.97% | 41.86% |
| | Xingye county | 69.6 | 52.24% | 49.2% |
| Chongzuo | Fusui county | 42.7 | 59.69% | 25.65% |
| | Ningming county | 40.6 | 60.05% | 17.25% |
| | Longzhou county | 27.2 | 63.32% | 20.23% |
| | Daxin county | 36.2 | 68.62% | 16.48% |
| | Tiandeng county | 41.5 | 63.76% | 46.47% |

Data source: Edited from Guangxi Statistical Yearbook 2007.

# The Competency and Demand of High Technology Enterprise

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**Abstract**

The acquisition and management of the human resources is the key to the success in high-tech enterprises. Since the enterprise management such as the total quality management, organization flexibility and flat, process reengineering, streamlining of the organization and organizational integration is rising and developing, high-tech enterprises have to concentrate on recognizing and developing the competency of the human resources. Updating the competency of the human resources has been requested by the characters of high-tech enterprises and the natures of human resources. The new competency of the human resources should include initiative active, team communication and cooperation, logical reasoning and analysis and achievement-oriented.

**Keywords:** High-tech enterprise, Human resources, Competency, Demand

## 1. High-tech enterprises' traits

As an important field of economic activities, this kind of enterprises is the focus of many science studies. Compared with traditional companies, high-tech enterprises' traits act differently when based on different study subjects. From the angle of human resources, they will appear these traits:

1) The main strategy of enterprises is human capitals; the management of HR is the central point of enterprises' management.

2) The sensible elements of enterprise's benefits does not only include their employee's personal competences, but more also the enterprise's whole HR's quality and quantity.

3) The working contents of an employee complicate, their techniques specialized and the position of his abstracts. The responsibilities of staff are not a person-a position anymore, but a person fits more positions and a position can have more employees.

4) The management of people changes from controlling-oriented to encouragement-oriented. The guiding index of comments on an employee is his working benefits, but not his working production rate.

5) The competition among enterprises mainly focuses on HC's competition.

## 2. High-tech enterprises' human capitals are different from human resources

According to the point of economist Weijie, the human capitals in enterprises are mainly these two kinds of people: The first kind of people are called technical innovator, the other kind are called professional manager. It is different from human resources which includes all the people in enterprises. In high-tech enterprises, the working traits of human capitals are different from those ordinary ones, they deal with knowledge-intensive issues and emphasize on self-management. Generally speaking, high-tech enterprises' human capitals mainly mean those who use professional techniques and knowledge to deal with company's operation and management issues. Their working is specialized and complex. Therefore, human capitals' management is different from traditional human resources" management.

## 3. The ability and competency of human capital

### 3.1 The traditional of human capital

Ability is usually referred to one's skill or competence. For example, we always think that one who can drive or write computer program is the competent. Strictly speaking, it means the level one can reach to be measured objectively; as a result, we can make up a set of normative standards to measure one's ability. Such kind of standards can be used broadly in the process of the management of human resource, such as to measure one's capacity, to employ, train and select somebody. Traditional enterprises have applied the technology of work analysis to determine the necessary skill and knowledge for certain job, and accordingly to employ workers, assess performance and train workers. Generally speaking, the management of human resource in traditional enterprises is ability-based.

However, with the development of market competition, making the organization flat, the direction of the team and the

ability of innovation become the key advantage in the competition. In the High-tech Enterprises, workers have become knowledge workers who must work without work specifications. In order to keep high-speed on the reaction to the environment, enterprises must grant more autonomy and elasticity to their workers and work has no longer been divided into several jobs, for which everyone has clear range. Traditional worker management model of "A carrot of a pit" has been hardly adapt to the volatile and complex environment and cannot meet the need of innovation for the High-tech Enterprises. In this condition, the Competency-based human resource management came into being.

*3.2 The concept of competency*

It was first proposed by McClelland, a professor at Harvard University in 1973. He doubted the phenomenon of widespread use in intelligence tests to select students in higher education, and said that more emphasis should be put on the competency which practically influences the performance of study rather than IQ. With the proposing of competency, different interpretations and definitions are given by many scholars. The simplest definition of competency is as follows: the ability and willingness to carry out its mandate, or the ability to use knowledge and skills to carry out the work. But Hayes, president of the American Management Association, and McBer consulting company insisted that competency went beyond the simple level having the ability to perform, was the integration of knowledge, character, motivation, self-concept (or social roles), and inter-personal skills, which brought out an outstanding performance.

We may sum up the concept of competency as the required knowledge, skills, ability, quality and attitude by a person in order to achieve superior performance, not only includes the current personal knowledge, experience and skills, but also includes the potential ability in its possible future and capacity development through learning, covered by the explicit of act skills to the implicit values, feelings or attitudes. These competency items are closely related to individual job performance, and most can be improved or changed through learning and training. The recognition and development of competency become a major topic in the realm of HR management in recent years, and the main reason is that competency management of human capital may:

3.2.1 Improve performance of staff & enterprise

In line with the corporate strategy and culture business through the recognition and development of the competency required by work (including knowledge, technology, attitude or self-cultivation, etc), encourage employees to work in more efficient way to complete its work resulting in better performance, and further efficiently use of the whole enterprise of human resources contributed to the achievement of business performance.

3.2.2 Meet the needs of long-term development of corporate HR

In the future times of knowledge-based work competition, the quality of corporate human resources must be constantly improved. Only by updating the knowledge, technology and ability can we form competitive capital difficult for competitors to imitate. The recognition and development of human capital competency is just to meet these needs, to get respect knowledge, technology and ability, to get systemic and long-term development.

## 4. Competency required of human resources in high-tech enterprises

The acquisition and management of the human resources is the key to the success in high-tech enterprises. Since the enterprise management including the total quality management, organization flexibility and flat, process reengineering, streamlining of the organization and organizational integration is rising and developing, high-tech enterprise has to concentrate on recognizing and developing the competency of the human resources. Updating the competency of the human resources has been requested by the characters of high-tech enterprises and the natures of human resources. The new competency of the human resources should include initiative active, team communication and cooperation, logical reasoning and analysis and achievement-oriented.

On understanding something or doing some work till now. Ability is the product of postnatal learning (formal and informal), in the condition of inborn circumstances. In other words, people traditionally think that ability means the knowledge, skill and attitude one holds.

Under such explanation, firstly, ability is one kind of input. Secondly, a person who accords to the qualification is able to effectively accomplish the mission. Third, such kind of knowledge and skill can

*4.1 Initiatively active*

On the one hand, human resources' work can not be invariable as their main responsibility in high-tech enterprises is innovative, increasing the difficulty in control and management of them; on the other hand, addition to the institutional building such as organization structure, business process, the key requirement in high-tech enterprises is the initiative participation and contribution of human resources, as the high-tech enterprises should respond elastically and rapidly to the complex and changeable business environment. In other words, besides necessary professional knowledge and technology, excellent human resources should put theories into practice initiatively, and unceasingly enhance and progress this initiative as well. Therefore, initiative attitude to its work is absolutely necessary for one to be an excellent talent of enterprises.

*4.2 Team communication and cooperation*

In the high-tech enterprise, with the increase of the technique complexity and the task difficulty, the enterprise no longer requires the employers of working alone in a heroic way but of their teamwork attitude and habit. The enterprise no longer requires the human resources of the specialization and the ever growing technique. As with the increase of task complexity, one person isn't possible to complete a whole project. Because of the more detailed and deeper in specialization theory, the persons with more specialized knowledge and techniques are becoming fewer and fewer. So the completion of a project needs the melting of different subjects and the communication and cooperation. Only in this way can create and cooperate the competitive products. In the enterprise, not only the colleagues in the same department need cooperate but also those in different departments also need communication and cooperation. Therefore, to be an excellent high-tech human resource, it's necessary to equip with cooperation.

*4.3 achievement guide*

Owing to the rapid changing of the industry environment, the high-tech enterprise needs to use the goal achievement rate to evaluate the human resource achievement. Willing to achieve the goal of the company is also the basic requirement which the human resource in the high-tech enterprise should equip with. Human resources should take pride in the challenging goal, be delighted to achieve it and have a strong motivation. Therefore, the quality of the achievement guide is the requirement of predicting the human resources achievement.

*4.4 Logical reasoning and analysis*

Cut-throat competition environment and rapid development step requires high technology industry to solve business problems in a short time, especially company losses due to controlling problems. Hence the ability of analyzing reasons and judge the key point of problems is very important. Therefore, excellent person could find and conclude many abnormal phenomenons and find potential problems before they happened in order to avoid troubles. That is to say, they must possess excellent control ability. It requires HR capital have favorable logical reasoning ability and analysis competency.

There are four basic competencies for HR capital in high-tech industry: ambitions, teamwork and cooperation, logical consequence and analyzing, achievement target. In order to get excellent HR capital, company always uses training and employment methods. That is to say, if the company thinks some of the four basic competencies could strengthen through education, it could be classified as the training item; but if managers consider it couldn't be improved through education, it should be attributed to the employment index according to its degree.

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# Strategic Handling to Changes

# in Small Manufacturing Organizations in India

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**Abstract**

Strategic planning in small organizations is significantly different from large organizations. The process is informal in nature, as in most of the cases, the entrepreneurs are the sole strategic decision-makers. They manage the day-to-day operations and perform multiple tasks, chalking out a growth plan. The core necessity of strategic leadership is to view the market and opportunities. By design, small manufacturing organizations have the advantage of flexible economies of scale which the large-scale industries cannot create. There are many areas in which small organizations in India can take the role of an outsourced agent and provide support to large-scale industries. Small organizations have developed competence to work on uncertain conditions, largely to meet the demand fluctuations of their customers. While maintaining this skill, they should gradually create market focus. This can further enhance their capability and preparedness to deal with changes in the growing competitive market in India.

**Keywords:** Small manufacturing organizations, Strategic planning and leadership, Scope for further study

## 1. Introduction: small manufacturing organizations

Small manufacturing organizations (also called Small Scale Industries-SSIs) have been contributing significantly to the growth of the country. According to the Third SSI Census, there are 3.57 million units in the country with a fixed investment of Rs. 9.21 bn, contributing Rs. 74.2 bn (at current prices) worth of production and providing employment to 19.97 million people. The export contribution is more than Rs. 7.12 bn. It accounts for 95% of industrial units, 40% of the value addition in the manufacturing sector, and 34% of exports. Owner/manager with experience in business.

• Specialized knowledge of product and / or of the manufacturing processes.

• Previous supervisory or managerial experience.

• Access to adequate financial resources.

• Competitive advantage in terms of cost, product specialization, customer specialization, or various forms of price / quality specialization.

• A well-developed strategy through formal / informal processes.

Flexibility and lower cost are considered to be the key advantages of small business units. In a competitive environment, flexibility and adaptability are the key drivers of success. Small business organizations easily change their product profile and fill the gaps that larger firms take time to detect or find too costly to service. There are three major reasons for the flexibility, namely size and nature of operations, less hierarchical levels, and direct association of the entrepreneurs who own the success and failure of the business.

By definition, a small scale unit in India cannot invest more that Rs. 10 mn (Rs. 50 mn in selected sectors) in plant and machinery. This makes them less capital intensive and reduces the entry barrier on account of investment capability. Due to the large population, they offer more employment and mostly use local skills. (Vasudevan, 1998)

## 2. Review of literature

Historically, banks and financial institutions consider small business accounts as high risk exposure leading to significant Non Performing Assets (NPAs). Liberal policies adopted by the government are one of the reasons for this problem (Neelamegam and Inigo, 2000). According to a study carried out by the National Institute of Bank Management (NIBM) on public sector banks in 2002, Rs. 547.73 bn NPAs are with the public sector banks, out of

which large industries constitute Rs. 114.98 bn, medium-scale industries constitute Rs. 86.55 bn and small-scale industries Rs. 102.85 bn, which are 22.01, 15.24 and 18.21% of the gross NPA, respectively.

The process of economic liberalization in India has created many opportunities for the growth of small manufacturing organizations and has also thrown many challenges. Experts feel that the small manufacturing organizations could achieve greater sustained growth by increasing technological capabilities (Majumdar, 2004). The organizational decline starts with the change in the environment and/or in the characteristics of the organization. In many cases, the entrepreneur does not analyze the environmental factors influencing profitability or growth of the business. The managerial inadequacy to restore fit between the two triggers the decline process (Maheshwari, 2000, Ramana and Papaiah, 1998). The major reasons for sickness in small manufacturing organizations are inadequate management such as non-availability of raw material, ineffective marketing, infrastructural bottlenecks, inadequate finance and gaps in entrepreneurial skills (Khandwalla, 1989).

Small business organizations are mostly entrepreneur-dependant. Competencies of the entrepreneurs contribute significantly to the success of these businesses, but limitations on account of all specialized skills available with one entrepreneur can lead to inefficient functioning of the business. As a result, lack of knowledge and managerial expertise leads to strategic pitfalls. The managerial capability, knowledge, business techniques, attitudinal framework and the wholehearted devotion of the entrepreneur towards the business contribute a lot towards the success of small organizations (Patnaik, 1987).

Hall (1992) after examining owner-managed firms, concludes that as the firms become aged they are more likely to be buffeted by strategic and environmental shocks for which they do not have managerial skills to respond. According to North, Leigh and Smallbone (1992), motivation plays a major role in survivors and non-survivors, i.e., the desire to grow or contract. Smallbone, North & Leigh (1992) identified five broad types of adjustments or changes-product and market, production process, employment and labor process, ownership and organizational adjustments, and locational adjustments. Small manufacturing businesses face challenges in finding the areas that fit their marketing capabilities, utilization of financial and human resources to their actual potential and provide an adequate return on the invested capital (Van Kirk & Nonnan, 1982).

## 2.1 Leadership

At the individual level, leaders mentor, coach, and motivate; at the group level, they build teams and resolve conflicts; and at the organizational level, they build culture. In most organizations, these three levels are discrete and easily identifiable (Mintzberg, 1998).

Good leaders are necessary for visionary companies to survive in the long run. Peters and Waterman (2003) sum up the qualities of a good leader-they concentrate on the market with just a product idea, riding the growth of an attractive product cycle. The highest agreement on conceptualizing leadership by various experts is `the ability of an individual to influence a group towards organizational goal'.

The purpose of the firm is that description which makes it distinctive. It also describes what the company wants to achieve. Practitioners also link this with organizational learning efforts. Patel (1995) argues that many small organizations are born because the entrepreneurs want independence. In such cases, purpose or vision does not directly address the organization, rather entrepreneurial aspirations influence more. Successful small organizations do not imitate large companies and decide to create a niche. However, he argues that agility and flexibility are the prerequisites for growth, and entrepreneurs who do not possess these characteristics may not succeed in growth.

Core competencies are the resources and capabilities that give the organization a competitive advantage. Long-term strategies are based on core competencies and an agreement is necessary across the organization about the resources and capabilities on which the organization can exploit the market (Kuatko & Welsch, 2001). Success of an organization will be determined to a large extent by its ability to develop and exploit core competencies. Knowledge sharing and learning are the keys in developing core competencies. Competitive strength of core competence increases through their use and continuing development (Stewart, 1997 & Lei, Hitt and Bettis, 1996). Prahalad & Hamel (2002) describe core competence as a bundle of skills and technologies that enables the organizations to deliver some important benefits. They have taken a view of this concept from the customer's perspective.

Human capital is the knowledge and skills of an organization's entire workforce or citizenry. Hence, continuous and systematic work on the productivity of knowledge and the knowledge workers enhances the capability of the organization to perform successfully. Leaders find ways to encourage the people to fulfill their potential (Kuratko and Welsch, 2001). In the context of small business organizations, Patel (1995) raised another issue. In a small organization, the entrepreneur often develops a belief that he is the absolute authority. Being the sole person managing the organization successfully since its inception, such a complacent attitude is understandable. When these organizations hire knowledgeable and competent people to support growth, there are problems in adjustments as these people may not

accept the knowledge superiority of the entrepreneurs. Retaining competent people in such cases becomes a problem. Phansalkar (1999) emphasized on innovation as one of the important determinants for success.

Organizational culture refers to the complex set of ideologies, symbols, and core values shared throughout the organization. Culture provides the context within which strategies are formulated and implemented. In the organizational context, culture relates to decisions, actions, communication patterns and communication networks. It reflects the organizational learning through continuous challenges of survival and growth (Kuratko & Welsch, 2001).

Ethical practices provide a moral filter through which potential courses of actions are evaluated. The influence of top management and leaders on ethical practices is accepted by all (Kuratko & Welsch, 2001). Organizational controls are formal and information-based procedures that the leaders use to frame, maintain and change organizational activities (Simons, 1994). These controls influence and guide the work in ways necessary to achieve performance objectives. Strategic control addresses the market, competition and organizational competencies. An effective information system provides support to this type of control. Financial control takes care of short-term performance goals. Effective leadership needs to create a balance between both (Kuratko & Welsch, 2001). Strategic leaders are able to establish controls in such a way that they facilitate flexible and innovative employee behavior and earns competitive advantage for the organization (Ireland & Hitt, 2001). Patel (1995) suggested that a normal degree of foresight can help small organizations to avoid many potential problems. He has also advocated usage of budgetary control.

While recommending the actions for strategic leaders, Ireland & Hitt (1999) emphasized on some major areas. First, the leaders should carry out growth orientation matching with resources, capabilities, and core competencies in order to take advantage of market growth opportunities. Second, they should enable the organization to develop, exploit and protect the intellectual capital i.e., knowledge bases. Third, they should mobilize the people to increase their adaptive capabilities and should throw challenging questions to the team members to work on newer dimensions. Fourth, they should facilitate in creating an effective organizational culture as culture influences performance. Last, they should remain focused on the future and should take some time to predict the future competitive conditions and future challenges.

*2.2 Strategic planning*

The process of strategic planning, not the plan itself, is the key to improving business performance. Strategic planning involves long range plans for effective management. It includes defining mission and objectives, developing strategies, and setting policy guidelines. (Wheelen & Hunger, 2004) Mintzberg (1994) defined some basic steps for strategic planning such as examination of internal and external environment of the venture, formulation of long and short-term strategies, implementation of strategic plans, evaluation of the performance of strategy and feedback. According to Mintzberg (1973), there are three basic modes of strategic planning namely, entrepreneurial mode, adaptive mode, and planning mode with the underlying orientation being proactive, reactive, and systematic respectively. He also referred to mixed modes for strategic planning based on different combinations of pure modes. Categorization given by Steiner, Miner and Gray (1982) involves further subclassifications of Mintzberg's pure modes giving rise to five approaches for strategic planning. While the formal structured approach of the researchers is comparable with the planning mode of Mintzberg, the intuitive anticipatory approach and entrepreneurial opportunistic approach may be viewed as a risk-based subdivision. Similarly, the incremental approach and adaptive approach may be considered as further subdivisions of Mintzberg's adaptive mode and entrepreneurial mode, respectively.

The strategy planning process orientations are not the same for entrepreneurial and professional managers. The entrepreneurial managers of small-scale organizations are basically the owners of the firms. For them, strategic planning is opportunity-driven and they remain flexible to undergo change in technology, willingness of the consumers to pay, social values and political climate. Entrepreneur's chase the opportunities fast and manage the risks associated with these opportunities. They commit resources at various stages in order to manage the risks (Stevenson, 1999). As the entrepreneurial firm matures, its strategic planning process tends to become formal (Berry, 1998). Absence of strategy planning leads to misunderstanding of industry attractiveness and competitive advantages, which may result into attempting unattainable competitive position. These entrepreneurs fail to work on strategy for growth (Porter, 1991). The fundamental benefit that strategy brings is consistency of action throughout the organization and helping people to take right decisions (Porter, 1996).

Bracker, Keats & Pearson (1988), Karger & Parnell (1996) and Schwenk & Shrader (1993) concluded that in spite of the fact that strategy planning is strongly related to financial performance, not many small organizations use this process. Not having enough time, unfamiliarity with strategic planning process, lack of skill, and lack of trust and openness are the major reasons (Wheelen & Hunger, 2004). On performance and planning sophistication, Rue & Ibrahim (1998) classified small organizations into three categories. The categories are based on the levels of planning. They concluded that the organizations which are engaged in strategic planning perform better than those who do not. In those small organizations which are into strategy planning, the entrepreneurs are the real strategists. All three levels of strategies-corporate, business, and functional are the concerns of the entrepreneurs (Wheelen & Hunger, 2004).

Environmental scanning is less structured in these organizations. Personal and family needs also strongly influence the mission and objectives of the business (Birley & Westhead, 1990 and Ward & Aronloff, 1994).

*2.3 Strategic leadership*

Entrepreneurs generally start business to seize short-term opportunities without a focus on long-term strategies. However, successful entrepreneurs make transition from tactical to strategic orientation in order to build capabilities and gather resources (Bhide, 1999).

Child (1972) explained that an organization's top-level manager had the discretion or latitude to make choices that would affect their firm's outcomes. Specific knowledge, experience, values, and performances of top managers are reflected not only in their decisions, but in their assessments of decision-making (Cannella & Monore, 1997). Bhide (1999) argued that entrepreneurs should formulate an explicit strategy which integrates their aspirations with specific long-term policies of the organization. The entrepreneur should also ensure that the strategy should make the organization profitable and enable the growth to a desired size. The strategy should serve the purpose of the enterprise over a long-term.

Strategic leadership, as a concept, has emerged due to the dynamic process of strategy planning. Strategic thinking was traditionally considered to be the job of the head of the organization alone. Theorists argued that in the 21$^{st}$ Century, the leadership is going to have a different meaning, instead of ranks and titles, and it will be regarded as a position of responsibility towards a range of stakeholders. Strategy planning, as a function, is performed at various levels. The overall strategic direction is also emerging as a group process rather than the sole discretion of a single individual. The leaders, instead of providing the right answers to complex issues, are going to ask the right questions (Ireland & Hitt, 2001). Stevenson, Grousbeck, Robert & Bhide (2000) brought forward another dimension, that as the firms define a strategy to compete in the market place, they also have an internal strategy to coordinate the efforts. The strategies of coordination are delegation of responsibility and use of formal control systems. These strategies influence the efficiency and effectiveness of the firms.

Authors of strategic leadership are of the opinion that explaining strategy formulation and implementation is easy, but this is to be charged by leadership. Leaders act like a spark plug by getting the things on by coaching others (Kotter, 1995, Hout & Carter, 1995, and Ghoshal & Bartlett, 1995).

## 3. Identification of position of small manufacturing org in India

• Small manufacturing organizations do not operate on long-term plans. Not defining formal vision or policy statements support this conclusion. Short-term planning is based on the sales projections provided by the customer forms. Such plans are prepared after due consultation with the managers/executives who look after operations.

• The entrepreneurs of small organizations support group processes. They share data on overall cost performance data with people, informally. They award salary increment to the employees based on own judgment without any data support. Human resource forecasting in any form is not found to be statistically significant.

• Data on the individual competence of the entrepreneurs indicate that the entrepreneurs possess computer skills. They are also focused on their own performance, as entrepreneurial leaders of small enterprises generally identify themselves with the enterprises they are leading. In spite of liberalized and global business environment, they expect protective support from the government. The support expectations are in the form of composite loans, collateral, credit linked capital subsidy and back ended capital subsidy. Since policy guidelines on credit and subsidies already exist and various agencies have been assigned the responsibilities to execute them, the gap does not necessarily highlight problems in the policy frameworks; the problem may lie in operationalizing the policies. The entrepreneurs have expressed satisfaction on the current policy of excise duty exemption and credit guarantee scheme.

• Since the adoption of liberalized policies, the government is gradually withdrawing the protective measures. In the light of this development, many change initiatives were expected by the small-scale sector. But the entrepreneurs did not appreciate that competition, global business issues, the World Trade Organization (WTO) and other issues like benchmarking could have been the possible reasons for initiating changes. Various dimensions of operational excellence like improvement in manufacturing cycle time, value improvement, meeting customers' requirements were also not found to be significant. On further investigation with select few organizations, it was found that the day-to-day operational issues keep the entrepreneurs busy to such an extent that they cannot focus on change issues.

• For future leadership, the entrepreneurs wanted only the sons or daughters as future leaders in their business. They also did not agree to transfer operational control to others in spite of not finding their sons or daughters competent to be the future leaders.

• Small organizations maintain close financial control. Product, process and quality costing are the most commonly adopted methods of control, in addition to budgeting. But human resource costing is not carried out. The process focused on excellence; initiatives such as TQM and six sigma were not implemented, the data on results such as

customer satisfaction, quality parameters, training effectiveness, etc., were also not monitored on a regular basis. In the absence of medium or long-term strategy planning, absence of the felt need for monitoring these aspects can be understood. On market expansion, the small-scale manufacturing organizations depend on the existing customer base and their short-term business projections.

• The small organizations depend on a select few customers (many of them are large scale organizations). As discussed previously, the planning process builds a scenario and becomes the basis for creating a blueprint for organizational growth, and the problem with regard to this view towards the market is one of the major strategic leadership issues in small organizations. As a result, data-based demand assessment, readiness to change as per the emerging market scenario, and willingness to remain competitive has not been found statistically significant.

• Organizational processes, namely communication, capacity and resource management, sales management, manufacturing and quality management, information and information technology management and technology managements were studied. The conclusions are as follows:

• Small manufacturing organizations possess strong customer relationship. This enables them steady sales and helps explore new opportunities with the existing customers. They depend on direct sales to the customers which in turn help in maintaining a strong customer relationship. A sale, being the primary focus, is looked after by independent personnel. On further investigation, it was reported that experienced personnel are recruited for this job and hence the sales team is not subjected to formal training. Also, they are not offered additional incentives. The organizations do not have any plan to go for on-line selling as a future strategy.

• The entrepreneurs communicate with the employees. They share production and productivity-related data with them. The channel is mostly verbal and informal.

• Manufacturing capacity planning is based on the machine manuals. Material planning is carried out once in a month. This is in alignment of policy to work on short-term plans. The organizations do not follow a system for resource identification and planning. The entrepreneurs felt that the current resource level is not adequate to cater to the potential export market.

• Manufacturing is the core focus of small manufacturing organizations. The organizations carry out production planning once in a month, based on the demand projections of the customers. As a measure of quality control, they carry out inspection of the incoming goods. Systems of process control such as first piece approval, patrol inspection are not in practice. Regular audits of manufacturing and quality systems are carried out. Many of them are also subjected to system audit by the customers as they act as sourcing points for large organizations. They adopt preventive maintenance for maintaining the machinery and utilities. ISO 9000/QS 9000 or similar certifications are not significant. Process automation has been found statistically significant but this aspect remains inconclusive as it does not match with conclusions on technological upgradation.

• On information and information technology management, usage of computer, Internet and e-mail for day-to-day work and communication are statistically significant. However, availability of website and usage of ERP or a similar system for operational efficiency enhancement is not significant. This supports the argument against usage of technology as discussed above.

• The organizations feel that lowering of investment limit from Rs. 50 mn to Rs. 10 mn has adversely affected the technological developments; they also feel that the cost of technology development is high.

• The possible scopes of improvement lie in a large continuum, from process improvement to a new product development; no single element was found statistically significant. This issue was further analyzed. The manufacturing sector has faced two consecutive shocks in the recent past-one, recessions in the last decade, and two, immediately before that the manufacturing sector was exposed to global competition. Small manufacturing organizations being at the buffer end of the supply chains face pressures on account of these reasons.

*3.1 Bringing change*

In an organization, major change efforts have to be vision-driven and led by the top. Leading change has to start with diagnosing the situation and then deciding on the way to handle it. The leadership roles which dominate the strategy implementer's agenda are as follows:

• Staying on the top of what is happening and how well things are going.

• Promoting a culture in which the organization is `energized' to accomplish strategy and perform at a high level.

• Keeping the organization responsive to changing conditions, alert for new opportunities, bubbling with innovative ideas, and ahead of rivals in developing competitively valuable competencies and capabilities.

• Building consensus, containing `power struggle', and dealing with the politics of crafting and implementing strategy.

• Enforcing ethical standards.

• Pushing corrective actions to improve strategy execution and overall organization performance. (Thompson & Strickland, 1999)

• According to Ireland & Hitt (1999), through the configuration of the following six activities, strategic leadership can be effective:

• Determining the firm's purpose.

• Exploiting and maintaining core competencies.

• Developing human capital.

• Sustaining an effective organizational culture.

• Emphasizing ethical practices.

• Establishing balanced organizational controls.

## 4. Scope for further study

Strategic management and strategic leadership are commonly understood to be appropriate only for large organizations. The study concludes that the strategic processes in small manufacturing organizations take a short-term view of the market and the customers. The processes are also informal in nature as in most of the cases the entrepreneur is the sole strategic decision maker. In other words, they function in a reactive mode as described by Mintzberg and they continue to follow the entrepreneurial strategic approach.

A critical review leads to the conclusion that these small organizations have developed competence to work on uncertain conditions, largely to meet the demand fluctuations of their customers. While maintaining this skill they should gradually create market focus. This can further enhance their capability and preparedness to deal with changes. Small organizations can work on two broad strategic options. One, they can gain competence in niche areas in which scaling down may not be possible for the large-scale industries. This option does not rule out the possibility of growth in the domestic and international market. Two, they can operate on a growth plan through which they could acquire competence to compete with others. Both these strategic options need a detailed analysis of the market and the industry.

Peters (2003) and Ghoshal, Bartlett & Piramal (2000) advocate that small is manageable, efficient, and profitable. Large corporations are dividing themselves into SBUs, they are adopting small batch production and small inventory levels; the businesses are redesigned to be lean to get better values. Small organizations by design, possess these inherent advantages. The very design of a small business model is based on agility and cost benefits. These are the issues for large organizations which they try to address through process redesign or re-engineering. The basic considerations behind such decisions are long-term perspective and competitive advantage on which the small manufacturing organizations are yet to focus.

The Indian small-scale sector is known for manufacturing competence. Although technology adoption/upgradation is not significant among the small manufacturing organizations, they are able to upgrade their skill and competence on processes for survival. This aspect calls for a detailed study.

Small organizations not only address the needs of employment creation, but also have the capacity to deliver the economies of scales to the large industries. Coexistence of the SSIs with the large ones is a business imperative. To remain competitive and flexible, large organizations depend on the small ones for value added sourcing.

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# A Study on the Effect Brought by Different Types of Ownership Control—Based on the Evidence from China's Listed Companies

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**Abstract**

By tracing the identity of large shareholders, this paper groups China's listed companies into four categories by different controllers and argues that these distinct types of owners have different objectives and motivations. As a result, this will affect how they exercise their control rights over the firms they invest in. In particular, the author contends that private ownership of listed firms in China is not necessarily superior to certain types of state ownership. To test the arguments the author investigates the relative efficiency of state versus private ownership of listed firms and the efficiency of various forms of state ownership. The empirical results indicate that the operating efficiency of Chinese listed companies varies across the type of controlling shareholder and the results are consistent with the predictions in the introduction.

**Keywords:** State ownership, Private ownership, Large shareholders, Ownership structure

## 1. Introduction

China's economy has undergone a significant transformation in the past quarter-century. Large swathes of industry have been reorganized as corporations and the profitable operating arms of many state owned enterprises (SOEs) have been privatized and listed on the stock market. Today, there are more than 1500 listed firms and China's market capitalization is the sixth largest in the world. Many companies are becoming world leaders; as one example, and PetroChina was once the largest listed company in the world in terms of market capitalization. In many ways the economic reforms can be regarded as a major success. Annual economic growth has averaged 10% in the past decade, exports have increased many-fold, foreign reserves are the largest in the world, and the marginal productivity of labor has increased substantially. Despite these successes, the profitability of listed firms has been poor (Chen and Firth and Rui, 1998, working paper and Chen and Firth and Rui, 2006a, pp. 82–109) and this raises concerns about firms' sustainability and financial distress.

Some studies have suggested that the state's retained shareholdings in listed firms have been responsible for their poor profitability. However, these studies have shortcomings as they fail to properly identify and distinguish among the different types of owners (Wang, 2003, Ph.D. thesis). In particular, prior research uses share type as a proxy for owner type but we demonstrate that this assumption is not valid and can lead to erroneous conclusions. The aim of this paper is to remedy the shortcomings in prior research by providing an in-depth examination of the relations between ownership structures and firms' performance in China. A key feature of many of China's privatized state owned enterprises is that the state retains a significant ownership stake after listing; in this sense privatized firms are actually partially-privatized. Although the state often retains substantial ownership in listed firms, this ownership is scattered among various agencies and each of these have different motivations and incentive structures. We argue that the different forms of state ownership lead to different performance outcomes for the firms they have invested in. Thus the lumping of all types of state ownership into one group, as has been done in prior studies, obscures the real impact of the state as a shareholder. We also argue that it is imperative to determine who the real share owners are, and what their motives are, rather than rely on the legal definition of shares as a proxy for ownership type.

A distinct characteristic of Chinese listed firms is that they have a single dominant shareholder whose ownership far exceeds that of the second largest shareholder. We classify the dominant shareholder into those that are state owned and those that are private. State ownership of firms is frequently criticized because of political intervention and the need to help achieve government objectives (Boycko and Shleifer and Vishny, 1996, pp. 309–319). These studies implicitly assume there is just one type of state owner. However, in China, the state's ownership of firms is undertaken by different types of agencies and we argue that the objectives of these agency-types dictate the extent of political intervention and the degree of commercialization of the listed companies they invest in. We classify state owners in

China's listed companies into three major types based on their political and economic interests: SAMBs (state asset management bureaus), SOECGs (SOEs affiliated to the central government), and SOELGs (SOEs affiliated to the local government). We argue that these three types of state owners have very different objectives when it comes to the listed firms they control.

We find that SOECG controlled listed firms excel in almost every way when compared to other ownership types. By contrast, listed firms controlled by SAMBs do badly in almost every respect. SOELG controlled firms are in the middle. We also find that Private investors, as the dominant shareholders of public firms, are not much better than SAMBs in terms of their associations with firm performance. The performance of Private controlled listed firms casts doubts on the claims that firms perform best when the state is completely absent from ownership (Dewenter and Malatesta, 2001, pp. 320–334), at least in the case of China.

This study contributes to the literature in several ways. First, it contributes to the literature on state versus private ownership. As we have Private controlled firms in our sample we can directly examine this issue in the context of China. In a transitional economy with a weak legal environment, the governance mechanisms of state and private ownership are different from those in either a planned economy or a developed market economy. We find that commercialized state ownership has its advantages in these circumstances. Thus, certain types of state ownership can be superior to private ownership when the institutional environment is relatively underdeveloped and when law enforcement is capricious and weak. Second, our study supplements the literature on transition economies. The type of privatization and the form of state ownership are major concerns in these economies (Stiglitz, 1999). We provide empirical evidence that certain types of state ownership help improve firm performance.

Finally, this paper contributes to the literature on ownership and control. We find that the relation between large shareholders and firm performance depends on who the large shareholders are. We document an alignment effect where higher ownership of the dominant shareholder is associated with better firm performance.

## 2. Ownership structure of China's listed companies

According to China's laws, a listed firm has six types of shares: state, legal person, foreign, management, employee, and individual shares. These shares have the same cash flow rights (e.g., they are entitled to the same dividends) and voting rights. Management, foreign, and employee shares represent less than 2% of the outstanding shares and so they do not constitute major voting blocks. State and legal person shares are not tradable on the stock exchange and they have concentrated ownership. In contrast, domestic individual shares are tradable and widely held.

Prior studies have generally focused on the relations between state shares, legal person shares, individual shares, and firm performance (Wei, Xie and Zhang, 2005, pp. 87–108). However, placing reliance on the legal definition of shares to infer investor type is very simplistic and ignores institutional realities (Green, 2004, working paper). Most importantly, legal person shares can be owned by a number of heterogeneous entities, ranging from solely state owned enterprises to private firms. These entities have different objectives and incentives and so grouping them together, as done in previous studies, distorts the results and leads to erroneous conclusions. Similarly, state shares can be owned by different types of investors. Another problem that has plagued prior research is the failure to identify the dominant shareholder and who that entity (or person) is. In this study, we investigate the ownership of China's listed companies based on the real identity of the large shareholders.

Our detailed investigation uncovers four main types of controlling shareholders in China's listed companies. They are state asset management bureaus (SAMBs), SOEs affiliated to the central government (SOECGs), SOEs affiliated to the local government (SOELGs), and Private investors. All of these investors exercise their control through the ownership of state or legal shares.

### 2.1 The state asset management bureaus (SAMBs)

SAMBs typically own the state shares and sometimes the legal person shares of the listed firms they invest in. In most provincial cities, a state asset management bureau, or the state asset operating company, has been established to manage state assets. SAMBs are shareholding institutions that belong to the state.

### 2.2 SOEs affiliated to the central government (SOECGs)

SOECGs refer to the 157 SOEs controlled by the central government under the State-owned Assets Supervision and Administration Commission (SASAC). Branches of the central government established these SOEs. Administratively, these SOEs belong to and are closely monitored by the central government, but they are located across the country and are involved in various industries. These companies are usually big and/or nation-wide companies, such as Sinopec Corp., the China Merchants Group, and so on. They are subject to strict monitoring.

### 2.3 SOEs affiliated to local governments (SOELGs)

SOELGs are SOEs controlled directly by a local government. These SOEs constitute the largest group of controlling shareholders of listed companies in China. The listed companies they control are typically spin-offs from the SOE.

SOELGs and SOECGs operate as profit-making entities and they can invest in the 'state' and 'legal person' shares of listed firms.

*2.4 Private investors*

This group of large shareholders includes both private firms and individuals. However, listed firms directly controlled by individuals only appear after 2001 when the 'Tian Tong Corp.' was listed, since prior to 1998 Chinese laws prohibited natural persons from directly holding more than 0.5% of the shares of a listed company. In most cases a Private investor becomes the largest controlling shareholder through the acquisition of non-tradable shares of the former large state shareholders either at the time of the IPO or subsequently. More recently, there are cases where a Private investor has built up a company and then listed it on the stock exchange. The shares held by controlling Private investors are usually legal person shares and at the time of our study they could not be traded on the stock market.

## 3. Motivations of controlling shareholders

Firms that have a Private investor as their dominant shareholder are actively monitored by that shareholder. Indeed, the Private investors often install themselves or their representatives as the CEO and the chairman of the listed firm. A Private investor typically has detailed knowledge of the industry in which the firm operates and so they can more easily enter into the management function or more effectively monitor the hired managers. A Private investor receives the cash dividends paid by the listed firm and the investor (if it is a company) uses consolidated or equity accounting to incorporate the listed firm's earnings into its own income statement. Agency problems associated with the separation of ownership and management will be small when a Private investor is the dominant shareholder. A much bigger concern for the minority shareholders of listed firms that are controlled by a Private investor is that their income and assets could be diverted or expropriated away by the dominant investor6 (Shleifer and Vishny, 1997, pp. 737–783). Unlike SAMBs and SOEs, Private investors are not subject to monitoring by the state and so it is easier for a controlling Private investor to expropriate (or tunnel) the income and assets of the listed firm away from the minority shareholders. Private controlled listed firms are therefore subject to a greater risk of diversion of assets by large shareholders. Given these conflicting influences, we do not know a priori whether firms controlled by Private investors perform better than those controlled by state entities.

While SAMBs and SOEs are ultimately owned by the state, they are different in many respects. First, SAMBs and SOEs differ as owners of listed companies in terms of the risk borne and benefits shared. Officials of SAMBs have the right to select the boards of directors and managers of SOEs, but bear no risks of the consequences of their selections (Zhang, 1998, working paper). Therefore, voting rights in their hands are typically 'cheap vote rights' (Harris and Raviv, 1988, pp. 203–235). The promotion of SAMB officials depends largely on how well they execute the instructions of the central or local government rather than on how much they contribute to creating firm value and dividend revenues. Political intervention is more likely if a listed firm is controlled by a SAMB.

SAMB officials are civil servants paid by the government and their remuneration and rewards have nothing to do with the performance of the listed companies they oversee. The SAMBs collect the dividends distributed by listed firms and deliver them to the state treasury. The officials have no right to use these dividend revenues. Therefore, the officials' well-being is not tied to the performance of the firms they are delegated to control. The SAMB officials typically have no relevant industry experience and so they lack the necessary skills to effectively monitor a firm's managers and they lack the knowledge to provide strategic advice. This problem is exacerbated as the officials have to look after the state's shareholdings in many firms and these firms are in a diverse set of industries. In addition, SAMBs are prohibited from being very close to the listed companies they control and this increases information asymmetry. Of all the ownership types, SAMBs are the least likely to expropriate wealth away from the minority shareholders (Deng, Gan and He, 2007, working paper).

SOEs have both the motives and the expertise to monitor managers of the listed spin-off firms and to provide strategic advice. Cash flows (dividends) and earnings (via consolidated and equity accounting) of listed firms flow through to the SOE investors and so they have incentives to appoint good managers and to monitor them. The motivations of SOEs to expropriate assets from a listed firm, and their ability to do so, lie somewhere between those of SAMBs and Private investors. While SOEs can benefit from expropriations, these investors are subject to monitoring by government ministries and state regulators. In summary, compared with SAMBs, SOEs have better risk bearing and benefit sharing mechanisms, exercise better monitoring, and are subject to less political intervention.

Distinctions should be made among SOEs affiliated to the central government (SOECGs) and those affiliated to local governments (SOELGs). First they differ as to the extent of the monitoring to which they are subject. SOECGs belong to the central government and are subject to strict supervision and monitoring from a number of departments under the central government including the National Audit Office (NAO). The chairmen of SOECGs are carefully chosen for their ability and many of them eventually become Vice Ministers of the state. It is important that these chairmen do well in their jobs so that they do not jeopardize their move up the state hierarchy. Local governments manage the state's assets

(via SOELGs) according to national law and regulations although they can also make their own policies, especially in terms of designing the organization's hierarchy. SOELGs are subject to the supervision and management either of the local government directly, or of state asset management bureaus at the local government level. SOECGs and SOELGs also differ in how well they observe the laws and regulations of China. Laws and regulations are more difficult to enforce the further away the parties are from the center of power and so SOELGs are subject to weaker supervision and management. Based on the motivations of SOEs and the degree of monitoring they face (by the government) we argue that SOECGs are more effective as dominant shareholders of listed firms than are SOELGs.

## 4. Empirical research

Table 1 reports the mean and median operating performance for firms with different types of largest shareholders and tests the significance of differences between the groups. The table shows that operating performance does differ for firms with different types of largest shareholders. For example, the mean (median) industry adjusted ROA for SAMBs is −2.96% (−1.07%) (see, Table 1, Panel B) whereas the mean (median) industry adjusted ROA for SOECGs is 0.88% (0.54%). Therefore, SOECG controlled firms have higher industry adjusted ROAs than SAMB controlled firms. Statistical significances of the differences in means and medians across different comparisons are shown in Panels C and D, Table 1. For example, the t-statistic (Z-statistic) of 9.05 (9.90) in the comparison of SOECG versus SAMB (see Panel C, Table 2) shows that the mean (median) ROA is significantly higher for SOECG controlled firms than for SAMB controlled firms. The results in Panels C and D of Table 2 can be summarized as follows. SOECG controlled firms are better than SAMB controlled firms in every respect except Tobin's Q where the difference is not statistically significant. Compared with firms controlled by SAMBs, firms controlled by SOELGs perform better across all performance measures except Tobin's Q. Compared with firms controlled by SAMBs, Private controlled firms have higher sales per employee and Tobin's Q. However, the results from a comparison of profit ratios are inconsistent. Firms controlled by SAMBs show higher cash flow returns (CFOA), while Private controlled firms show better earnings (ROA). SOECG controlled firms are superior to Private and SOELG controlled firms in all the measures except Tobin's Q (for the Private comparison). Finally, the comparisons between Private and SOELG show that SOELGs have better performance measures except for sales per employee and Tobin's Q. In summary, the simple comparisons of means and medians of raw and industry adjusted performance indicate that firms controlled by SOECGs do best, those controlled by SAMBs and Private do worst, and those controlled by SOELGs are in-between.

To summarize the results from Table 1 and Table 2, SAMBs demonstrate the poorest performance of the four groups of controlling shareholders of China's listed companies while SOECGs perform the best. SOELGs are in between SAMBs and SOECGs while Private controlled firms do little better than SAMB firms. The results are consistent with our expectations which are based on the motivations of the different types of owners.

## 5. Tests of reverse causality

A potential problem with our results is endogeneity or reverse causality. It is conceivable that when the government decides to privatize the productive units of SOEs, they allocate the more profitable ones to a specific type of owner. If this is the case, then it will be difficult to ascribe a firm's performance to the influence of its dominant shareholder. To test whether initial ownership types are influenced by firm performance, we construct a sample of 540 IPO firms that were listed in the period 1998–2004 and extract their operating performances for the first year after they were listed. We then use multinominal logit regression models to explore whether their operating performances influences the initial choice of ownership type. The models follow Schmidt and Strauss (1975, pp. 745–756).

The untabulated results from the multinomial logit regressions show that the coefficients on operating performance are not significant. This indicates that the choice of initial ownership type for a Chinese listed company is not influenced by the company's operating performance at that time and so reverse causality does not appear to be a problem. Our evidence is consistent with (Aivazian, Ge and Qiu., 2005, pp. 791–808), (Wei, Xie and Zhang, 2005, pp. 87–108), (Wang, 2005, pp. 1835–1856) and (Deng, Gan and He, 2007, working paper) who, in different contexts, conclude that the Chinese government does not use the profitability of SOEs as a criterion in deciding which SOEs to corporatize and what the initial ownership structure should be.

## 6. Conclusions

This study investigates the relations between types of large shareholders, ownership structure, and firm performance. We find that state shareholders differ in their management and monitoring effectiveness. The bureaucratic SAMBs perform worst, the SOECGs perform best, and the SOELGs are in-between. Private controlled listed firms are not superior to SOE controlled companies and are only marginally better than SAMB control. Our results contrast with prior research studies that conclude that state ownership is harmful to listed firms. The difference in findings is due to our focus on who actually owns the shares rather than the share type. Furthermore, we go to great lengths to explain the different objectives of the different types of owners and how this impacts on firm performance. We find no evidence to suggest that the initial choice of controlling shareholder (usually a choice made by, or with the blessing of, the state) is

dependent on a firm's performance. In additional tests, we find that ownership concentration is positively related to the operating performance of the firms but there are no significant non-linear effects. A variety of robustness checks confirm the results.

The results provide support for our argument that listed firms controlled by SAMBs have poorer performance than other types of ownership. The virtual absence of incentives and the lack of skills of the SAMBs (and their officials) to closely monitor the listed firms they control leave those firms bereft of leadership and oversight. In contrast to much received wisdom, we find that, in the context of China, listed firms that are controlled by Private investors do not perform the best. Our results are consistent with the suggestion of Stiglitz (1999) that market oriented state shareholders may be the most suitable controlling owners of firms in countries with weak institutional environments.

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Table 1. Operating performance for firms with different types of largest shareholders (A)

| | SAMB | | | SOECG | | | SOELG | | | Private | | | All | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Obs. | Mean | Median | Obs. | Mean | Median | Obs. | Mean | Median | Obs. | Mean | Median | Obs. | Mean | Median |
| *Panel A: Raw* | | | | | | | | | | | | | | | |
| ROA | 968 | 0.42% | 2.00% | 839 | 4.43% | 4.12% | 3065 | 3.19% | 3.56% | 1241 | 0.75% | 3.06% | 6113 | 2.43% | 3.29% |
| CFOA | 968 | 4.53% | 4.24% | 839 | 6.20% | 5.52% | 3065 | 5.13% | 4.86% | 1241 | 3.18% | 3.42% | 6113 | 4.79% | 4.52% |
| ROS | 964 | −7.32% | 3.35% | 838 | 7.13% | 6.21% | 3042 | 2.68% | 6.41% | 1209 | −13.11% | 6.92% | 6053 | −1.45% | 5.97% |
| AEMP | 946 | 1.797 | 0.608 | 827 | 2.399 | 0.893 | 3009 | 2.082 | 0.650 | 1221 | 2.696 | 0.873 | 6003 | 2.206 | 0.715 |
| SEMP | 947 | 0.931 | 0.310 | 828 | 1.849 | 0.522 | 3006 | 1.054 | 0.319 | 1209 | 1.045 | 0.312 | 5990 | 1.143 | 0.341 |
| Tobin's Q | 968 | 2.792 | 2.446 | 839 | 2.865 | 2.419 | 3065 | 2.705 | 2.351 | 1241 | 3.293 | 2.616 | 6113 | 2.860 | 2.422 |
| *Panel B: Industry median adjusted* | | | | | | | | | | | | | | | |
| ROA | 968 | −2.96% | −1.07% | 839 | 0.88% | 0.54% | 3065 | −0.40% | 0.06% | 1241 | −2.12% | 0.19% | 6113 | −0.98% | 0.00% |
| CFOA | 968 | 0.16% | −0.03% | 839 | 1.49% | 0.54% | 3065 | 0.32% | 0.01% | 1241 | −0.60% | −0.12% | 6113 | 0.27% | 0.00% |
| ROS | 964 | −14.33% | −2.10% | 838 | −0.96% | −0.38% | 3042 | −5.38% | −0.07% | 1209 | −19.37% | 0.86% | 6053 | −8.99% | −0.21% |
| AEMP | 946 | 0.816 | −0.080 | 827 | 1.452 | 0.150 | 3009 | 1.170 | −0.015 | 1221 | 1.524 | 0.016 | 6003 | 1.225 | 0.000 |
| SEMP | 947 | 0.512 | −0.043 | 828 | 1.457 | 0.168 | 3006 | 0.680 | −0.002 | 1209 | 0.594 | −0.043 | 5990 | 0.743 | −0.001 |
| Tobin's Q | 968 | 0.236 | −0.018 | 839 | 0.326 | 0.005 | 3065 | 0.194 | −0.048 | 1241 | 0.796 | 0.179 | 6113 | 0.341 | −0.003 |

Table 2. Operating performance for firms with different types of largest shareholders (B)

| | SOECG vs SAMB | | SOELG vs SAMB | | Private vs SAMB | | SOECG vs SOELG | | SOECG vs Private | | SOELG vs Private | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean[a] | Median[b] | Mean[a] | Median[b] | Mean[a] | Median[b] | Mean[a] | Median[b] | Mean[a] | Median[b] | Mean[a] | Median[b] |
| *Panel C: Test of RAW differences* | | | | | | | | | | | | |
| ROA | 9.050*** | 9.900*** | 8.408*** | 9.624*** | 0.618 | 4.702*** | 4.179*** | 2.999*** | 7.115*** | 5.636*** | 7.166*** | 4.127*** |
| CFOA | 3.930*** | 3.891*** | 1.876* | 2.510** | −3.266*** | −2.877*** | 3.039*** | 2.426** | 6.699*** | 6.344*** | 6.196*** | 6.038*** |
| ROS | 6.025*** | 7.866*** | 5.300*** | 9.396*** | −1.607 | 6.732*** | 2.833*** | 0.336 | 6.142*** | 0.989 | 7.391*** | 0.834 |
| SEMP | 2.121** | 9.053*** | 1.303 | 2.775*** | 3.139*** | 7.309*** | 1.217 | 8.370*** | −0.911 | 1.760* | −2.769*** | −6.397*** |
| AEMP | 3.884*** | 10.871*** | 0.911 | 2.467** | 0.788 | 1.443 | 4.386*** | 10.975*** | 3.832*** | 9.649*** | 0.080 | 0.763 |
| Tobin's Q | 0.999 | 0.237 | −1.615 | −1.660* | 5.101*** | 3.488*** | 2.825*** | 1.848* | −4.065*** | −2.961*** | −9.206*** | −6.069*** |
| *Panel D: Test of industry median adjusted differences* | | | | | | | | | | | | |
| ROA | 8.865*** | 9.761*** | 7.892*** | 8.619*** | 1.563 | 6.806*** | 4.588*** | 3.877*** | 5.914*** | 3.337*** | 5.131*** | 0.069 |
| CFOA | 3.254*** | 3.261*** | 0.529 | 0.870 | −1.838* | −0.991 | 3.466*** | 3.115*** | 4.797*** | 4.142*** | 2.987*** | 2.113** |
| ROS | 5.612*** | 6.365*** | 4.802*** | 7.522*** | −1.399 | 7.540*** | 2.869*** | 0.385 | 5.591*** | −1.687* | 6.588*** | −2.812*** |
| SEMP | 2.339** | 8.628*** | 1.865* | 4.987*** | 2.581*** | 4.313*** | 1.128 | 6.151*** | −0.235 | 4.022*** | −1.682* | −0.659 |
| AEMP | 4.018*** | 12.407*** | 1.250 | 5.977*** | 0.571 | 0.343 | 4.321*** | 10.337*** | 4.143*** | 11.757*** | 0.749 | 5.616*** |
| Tobin's Q | 1.418 | 1.112 | −0.935 | −0.570 | 6.110*** | 6.517*** | 2.724*** | 1.908* | −4.793*** | −5.082*** | −10.340*** | −9.166*** |

**Notes:** The table reports both raw (RAW) and industry median adjusted (IA) measures of operating performance. ROA/CFOA is operating earnings/cash flows deflated by the average book value of the total assets. ROS is operating earnings deflated by net sales. AEMP is the ratio of the average book value of total assets to the number of employees in RMB millions. SEMP is the ratio of net sales to the number of employees in RMB millions. Tobin's Q is market value of total assets deflated by the average book value of total assets, where market value of total assets is the sum of monthly average market capitalization and average total debts. For some measures, the numbers of observations are slightly smaller than the sample sizes due to missing values.***, **, and * represent statistically different from 0 in T-test for means and in the Mann-Whitney U-test for medians at the 1%, 5%, and 10% levels, respectively.

a. t-value from the T-test of differences in means.

b. Z-value from the Mann-Whitney U-test of differences in medians.

# The Research on Financing of New-Model Culture Industry

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**Abstract**

New-model Culture Industry is a newly-developing industry even in the whole world, and is also a "sunrise" industry. In this paper, a full-scale view over the direct financing of New-model Culture Industry in China will be taken. The Paper discussed New-model Culture Industry of china in many angles, like the definition of New-model Culture Industry, the direct financing of New-model culture Industry; these problems are mostly have no universal answers. Based on the generalization and analysis of many researchers, the paper advanced its own opinion on these problems. At last, through the empirically research, we establish a Direct Finance Model of New-model Culture Industry. Hopefully, this Direct Finance Model will help the development of our country's New-model Culture Industry.

**Keywords:** New-model culture industry, Direct financing, Direct finance model of new-model culture industry

## 1. Introduction

At present, regardless of the observation which comes from the practice or from the theory, we discovered clearly that sustainable development of the cultural and economic integration development is the tendency which the modern society develops. This trend of development enabled the New-model Culture Industry to become the "sunrise" industry which recognized in the world. Early stats shows that the American New-model Culture Industry's output value occupies approximately 1/5 GDP; Japanese economy which had once created the world miracle, its cultural industry is also core industry.

## 2. Characteristics of the New-model culture industry

In china, the cultural industry's first development is based by culture structural reforms. Because the culture structural reforms still lagged, the market mechanism has not completed completely, Such as media industry admittance barrier existences and so on. Lots of the cultural industry resources IS restricted and only used in the government's departments. Therefore, the development result of the traditional culture industrial cannot meet the social need. However, take informationization, technicalization as characteristic the New-model Culture Industry had a broad develop market. In china, a large number of surplus capital crosses the system restriction of the traditional culture industry, invests to the New-model Culture Industry domain. The New-model Culture Industry New cultural industry investment cost's increase causes the traditional culture industry to decline gradually. Complies with the situation, we must develop the new cultural industry emphatically vigorously.

The New-model Culture Industry is based by the high and new technology and the private capital, compares traditional culture industry, the superiority is obviously: Firstly, the New-model Culture Industry's potential is huge, and it keeps pace with the times. The New-model Culture Industry is the driving force for rapid development of electronic information science and technology. The modernization is the high tech socialization, it founds inevitably the new economical time. And the new economical reflection is the New-model Culture Industry. Secondly, the multiplication finances. Without the institutional barrier, the New-model Culture Industry can attract private surplus capital. And it also can adapt the market and the social need. Third, the market is broad and consumer is good.

New cultural industries and new consumer grow up groups at the same time. The multiplication finances as a new social production and consumption's new combination, it has a great market prospect For example emerging media, because the originality, interactive, the experience, convenient, the information content big and so on merits have won consumer's favor rapidly.

## 3. Direct financing model of the new-model culture industry

*3.1 Present situation of our country's New-model Culture Industry*

In recent years, threw the financing gradual growth along with the cultural domain, our country's the New-model Culture Industry obtained a quick development. But compares with the overseas developed country and the area, our country new culture industry is just at the start stage In the New-model Culture Industry's enterprise presents "the few

big enterprises, the massive Small business" characteristic, The enterprise assets scale is generally small, the middle and small scale Cultural enterprise occupies the overwhelming majority, only a few enterprise has competition. At the same time, considered the New-model Culture Industry has high risk financing, lacks enough management information and "Macmillan gap", the New-model Culture Industry development direct finance. The direct finance has irreplaceable screening and supervising mechanism. That is standard mechanism, the fund raising mechanism, the society supervising mechanism and the entrepreneur cultivation and the standard mechanism.

The direct finance may also promote the small and medium-sized enterprise perfect company to govern, realizes the standard development The New-model Culture Industry Enterprise in our country is development rapidly, but substandard management behavior is also common, through the direct finance, we can increases the restraint of the Supervisory department, the market and the media, and it will helpful in this type enterprise management structure improvement.

### 3.2 The fuzzy synthetic rating model of the New-model Culture Industry's enterprise value growth potential

According to the New-model Culture Industry enterprise's investment present situation, in order to seek for a better investment, a rating enterprise value growth potential's fuzzy synthetic evaluation system is essential. Through appraisal enterprise value drivers factor, and connect financial norm performance and non-financial norm together, provides the basis for enterprise's direct finance.

3.2.1 Determination synthetic evaluation's factor set

**Insert Table 1 here**

3.2.2 Establish appraisal set, and carry on the single factor appraisal

Appraisal set is the expert who made the evaluation level to the appraisal object. This case has 20 experts to carry on the appraisal, is divided five ranks, respectively is "A, B, C, D, and E." Appraisal set $V= (V_1, V_2, V_3, V_4, V_5)$

**Insert Table 2 here**

From the Table 2 we get RUF Moment $R_{11}$ of $U_{11}$.

3.2.3 Identified the weights of the factors

This case determination to the factors weights by the Delphi method. $U_i$ as U's weight is $W= (W_1, W_2, W_3)$; $U_{ij}$ as $U_i$'s weight is $W_1= (W_{11}, W_{12})$; $W_2= (W_{21}, W_{22}, W_{23}, W_{24})$; and so on.

$W= (0.35, 0.4, 0.25)$

$W_1= (0.4, 0.2)$

$W_2= (0.35, 0.25, 0.2, 0.2)$

$W_3= (0.35, 0.3, 0.2, 0.15)$

……

$W_{33}= (0.3, 0.25, 0.25, 0.2)$

3.2.4 Calculates the fuzzy matrix, obtains the measure results

$B=W \circ R$

B is fuzzy synthetic evaluation of the case. "$\circ$" is a broad synthesis of computing. We used one of its model M ($\cdot$, $\odot$). Because this model take into account the impact of comprehensive evaluation of various factors, and to retain the single-factor evaluation of all of the information. Through to the third factors carried on the first-level synthesis judgment, and carried on the second-level synthesis judgment and the third-level synthesis judgment in turn in the first-level judgment's foundation. Finally we get the result.

$B=W \cdot R= (0.2865625, 0.32596875, 0.22025, 0.03880625)$

According to the biggest degree of membership principle, the enterprise value growth potential belongs to "B".

### Acknowledgement

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Table 1. Fuzzy synthetic evaluation's factors sets norm constitution

| aim | The first factors (the third-level judgment) | the second factors (the second judgment) | The third factors (the first-class judgment |
|---|---|---|---|
| Enterprise value growth potential (U) | Shareholder satisfaction($U_1$) | Shareholders ROI($U_{11}$) | Economic Value Added($U_{111}$) |
| | | | Rights of return($U_{112}$) |
| | | Concentration of shares($U_{12}$) | the three major shareholders stake($U_{121}$) |
| | | | the five major shareholders stake($U_{122}$) |
| | | | the ten major shareholders stake($U_{123}$) |
| | Employee Satisfaction($U_2$) | Staff salaries($U_{21}$) | The average annual income of employees($U_{211}$) |
| | | | Staff revenue growth($U_{212}$) |
| | | | Operators salaries($U_{213}$) |
| | | Employee participation in decision-making ($U_{22}$) | The staff recommended rate($U_{221}$) |
| | | | The per capita number of recommendations to rationalize($U_{222}$) |
| | | | suggestion accepted returns rate($U_{223}$) |
| | | Overall quality of employees($U_{23}$) | Operators of the posts Work Experience($U_{231}$) |
| | | | Operator's health and age($U_{232}$) |
| | | | Operator stake($U_{233}$) |
| | | | Staff qualifications and the proportion ($U_{234}$) |
| | | | The average age of staff($U_{235}$) |
| | | | Proportion of professional and technical personnel($U_{236}$) |
| | | Staff skills development($U_{24}$) | The cost of education and training($U_{241}$) |
| | | | Professional training days($U_{242}$) |
| | | | Management staff to receive training days($U_{243}$) |
| | | | Per capita training costs($U_{244}$) |
| | Customer Satisfaction($U_3$) | Product / service quality($U_{31}$) | Products pass rate($U_{311}$) |
| | | | Product percentage of products sent back for repair ($U_{312}$) |
| | | | Product returning goods rate($U_{313}$) |
| | | | Production cycle($U_{314}$) |
| | | Product Innovation($U_{32}$) | New product development success rates($U_{321}$) |
| | | | R & D costs($U_{322}$) |
| | | | New product development cycle($U_{323}$) |
| | | | Brand awareness($U_{324}$) |
| | | After-sales service($U_{33}$) | On time delivery rate($U_{331}$) |
| | | | Successful resolution of complaints rate($U_{332}$) |
| | | | response the complaints rate($U_{333}$) |
| | | | On-site service speed($U_{334}$) |

Table 2. Measure results table

| The second factors | The third factors | Opinion rating and ratio | | | | |
|---|---|---|---|---|---|---|
| | | $V_1$ | $V_2$ | $V_3$ | $V_4$ | $V_5$ |
| $U_{11}$ | $U_{111}$ | 0.5 | 0.25 | 0.1 | 0.05 | 0.1 |
| | $U_{112}$ | 0.6 | 0.15 | 0.2 | 0.05 | 0 |
| $U_{12}$ | $U_{121}$ | 0.6 | 0.2 | 0.1 | 0.05 | 0.05 |
| | $U_{122}$ | 0.5 | 0.15 | 0.2 | 0.1 | 0.05 |
| | $U_{123}$ | 0.7 | 0.1 | 0.05 | 0.1 | 0.05 |
| $U_{21}$ | $U_{211}$ | 0.3 | 0.3 | 0.3 | 0.1 | 0 |
| | $U_{212}$ | 0.2 | 0.4 | 0.3 | 0.1 | 0 |
| | $U_{213}$ | 0.3 | 0.5 | 0.2 | 0 | 0 |
| $U_{22}$ | $U_{221}$ | 0 | 0.2 | 0.3 | 0.4 | 0.1 |
| | $U_{222}$ | 0 | 0.3 | 0.2 | 0.3 | 0.2 |
| | $U_{223}$ | 0 | 0.3 | 0.15 | 0.5 | 0.05 |
| $U_{23}$ | $U_{231}$ | 0.4 | 0.2 | 0.3 | 0.1 | 0 |
| | $U_{232}$ | 0.35 | 0.35 | 0.25 | 0.05 | 0 |
| | $U_{233}$ | 0.2 | 0.3 | 0.4 | 0.1 | 0 |
| | $U_{234}$ | 0.4 | 0.5 | 0.1 | 0 | 0 |
| | $U_{235}$ | 0.4 | 0.3 | 0.2 | 0.1 | 0 |
| | $U_{236}$ | 0.3 | 0.4 | 0.25 | 0.05 | 0 |
| $U_{24}$ | $U_{241}$ | 0 | 0.4 | 0.5 | 0.1 | 0 |
| | $U_{242}$ | 0 | 0.35 | 0.4 | 2 | 0.05 |
| | $U_{243}$ | 0 | 0.4 | 0.4 | 0.2 | 0 |
| | $U_{244}$ | 0 | 0.2 | 0.5 | 0.2 | 0.1 |
| $U_{31}$ | $U_{311}$ | 0.5 | 0.4 | 0.1 | 0 | 0 |
| | $U_{312}$ | 0.6 | 0.3 | 0.1 | 0 | 0 |
| | $U_{313}$ | 0.4 | 0.5 | 0.05 | 0.05 | 0 |
| | $U_{314}$ | 0.5 | 0.35 | 0.15 | 0 | 0 |
| $U_{32}$ | $U_{321}$ | 0 | 0.3 | 0.6 | 0.1 | 0 |
| | $U_{322}$ | 0 | 0.3 | 0.5 | 0.05 | 0.05 |
| | $U_{323}$ | 0 | 0.2 | 0.5 | 0.2 | 0.1 |
| | $U_{324}$ | 0 | 0.4 | 0.4 | 0.2 | 0 |
| $U_{33}$ | $U_{331}$ | 0.2 | 0.7 | 0.1 | 0 | 0 |
| | $U_{332}$ | 0.2 | 0.6 | 0.1 | 0.1 | 0 |
| | $U_{333}$ | 0 | 0.5 | 0.4 | 0.1 | 0 |
| | $U_{334}$ | 0.2 | 0.4 | 0.3 | 0.1 | 0 |

# What Type of Corporate Culture

# Should the Contemporary Enterprises Build?

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**Abstract**

The corporate culture, the key factor affecting business core competitiveness, is the most strategic management thinking and management method for modern enterprises. The paper discusses that corporate culture plays an important role in the growth of enterprises, analyzes that enterprises should build what type of corporate culture under new economic form?

**Keywords:** Corporate culture, Core competitiveness

The corporate culture, as a management theory and management method, seen in the late 1970s and early 1980s, was raised by some American management experts summing up the Japanese Enterprise's managerial experience points. In the early 1980's, the Japanese sustained economic growth for many years attracted worldwide attention, in order to meet the challenges of Japanese Enterprises, the U.S. business community and academia began to study Japan's corporate management style. In 1981, American scholar William Ouchi published his research results about Japanese companies - "the Z Theory - How the United States to meet the challenge of Japan." The book proposed: their unique corporate culture is the key factor in the success of Japanese enterprises.

The domestic and foreign massive enterprises practice indicated that the outstanding enterprise culture may enhance enterprise's core competitiveness. The famous US management expert Edgar H. Schein pointed out in his book "The Corporate Culture Survival Guide: Sense and Nonsense About Culture Change": The massive cases proved that in different enterprise development's period, the corporate culture restoration is the driving force promoting the enterprise advance, the corporate culture is the core competitiveness. The outstanding corporate culture, the enterprise's bond, has the function of condensation and guidance, may cause the company staff to approve of company's goal, and unify their own life pursuits with company's goal. The corporate culture is the foundation on which the enterprise's core competitiveness bases. In the future, competition among enterprises will be the corporate culture competition, the corporate culture is enterprise's core competitiveness.

Outstanding corporate culture promotes enterprise sustainable development. The outstanding corporate culture will cause enterprise's leading members to have the corporate identity and the sense of mission, this will be the intrinsic power of the enterprise development. It is well known, the physical resources will be exhausted some day, but the corporate culture will actually grows continually, becomes the power supporting enterprise's sustainable development. The excellent corporate culture has a powerful incentive feature, the worker's enthusiasm, initiativeness and creativity will be fully mobilized and inspired so that the staff's ability can be brought into full display, thus causes the enterprise to innovate unceasingly , realizes the sustainable enterprise growth.

Then what type of corporate culture should the contemporary enterprise construct under new economic form? We believe that the new trend of corporate culture in the following areas should be focused on especially by the contemporary enterprises:

## 1. The company should build the "people-oriented" corporate culture

The corporate culture can conform enterprise's behavior through the common values, thus integrate the enterprise whole joint efforts, and form the corporate competitive advantage in the marketplace. An enterprise to thrive for a long time must have a high-grade corporate culture based, achieve the change of style of scientific approach mainly based on rule to both rule and the corporate culture of "people-oriented" equally. The company should take effective measures to encourage people to display their initiativeness, enthusiasm and the creativity fully, maximize employees potentials, promote individuals and business to achieve common development and growth, realize the common interests between

employees and business. Just as USA HP's culture has often been called by the "HP Way" (road of the HP), believed that respects for the individual, respects for employees to be put to the chief place by the company.

## 2. The company should build the distinctive and characteristic corporate culture

The corporate culture must have his own characteristics. In the real life, it is very difficult to find out two companies with the same corporate culture. The characteristics, the corporate personality, reflects the history of the corporate development, only applies to the own enterprise, may not suitable other enterprises. As a result, corporate culture must be focused on the most valueable corporate spirit, the corporate core value, that refined carefully from the historical development of enterprises, and not simply imitate others. Many domestic and foreign outstanding enterprises have the distinct cultural personality, like Haier Group idea "To be true forever", IBM Corporation spirit "Blue express", Nokia company philosophy "Connecting People" and so on. Their corporate culture all suit the enterprise present situation and the future development need.

## 3. The company should build the continuous and innovative corporate culture

The innovation is the essence of corporate culture building, and the fundamental way for corporate vitality. The corporate culture construction must keep pace with the times, complies with social and the time request, as Hisense Corporation "the innovation is the life", the General Electric Company "the progress is our most important product", the BMW company BMW "to make driving a pleasure" and so on, demonstrate to the society that enterprises are innovative. Therefore, we should inherit and carry forward the fine traditional Chinese culture, mining and reorganizing the precious cultural resources which the enterprise forms for a long time. With the development of perspective and innovative thinking to the original spirit of enterprise, the company should carry out management integration with new time connotation, ensure that the corporate culture has always been full of vigor and vitality.

## 4. The company should build the social responsibility fulfilling corporate culture

With the development of society, the people pay attention to corporate social responsibility which influencing the corporate image greatly more and more. Corporate social responsibility reflects the overall consistency of interests of business and social interests. The enterprise is society "the economical cell", should also bear the responsibilities and obligations to the society and the public in the pursuit of profit maximization. In enterprise's developing process, only unifies well enterprise's economic target and the community responsibility, can establish a good corporate image and brand image impressively in the social public mind, realize the harmonious development of enterprises.

In short, the corporate culture is the enterprise vitality fountainhead. In order to achieve competitive advantage and realize the sustainable development, the businesses should continue to develop their own rich personality and unique corporate culture.

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# The Analysis of Simultaneous Multi-Equations Model on the Relationship between Trade and Economic Growth in China

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**Abstract**

Since reform and opening up, foreign trade has played an important role in promoting the development of China's market economy. The thesis based on the theory of econometrics makes analysis of simultaneous multi-equations model on the relationship between foreign trade and economic growth in China by the data of 1978-2007, and concludes that export indeed played an important role in promoting economic growth, and the positive effect of export exceeds the negative effect of import; the negative effect of import on the economy can be offset through affecting consumption which impacts on economic growth positively; China's economy will have more space for development because of the discover in the thesis that domestic demand has almost the same effect in promoting economy as export.

**Keywords:** Lagging effect, Endogenous variable, Predetermined variables

China's foreign trade has developed rapidly since the reform and opening up policy with 13.4% of an average annual growth rate. This growth rate is leading the world average, and china has caught up with and even surpassed the major developed countries in terms of scales gradually. At the same time, China's economic development has shown impressive results with 9% of an average annual growth rate. Realistically, Chinese trade promotion strategy for the development has become a model for economic development to a number of countries in the world. Therefore, researching the relationship between China's foreign trade and economic growth has strong practical significance.

## 1. Introduction

Over the past years, whether or not china's foreign trade promoting economic growth has been the focus of debate in economic area. As a result of different research methods, economists have different conclusions on this question. Chen Jiaqin (1999) said that the import plays a more important role in promoting the economic growth than export by making use of the methods of Elastic Analysis and Causal Analysis; Shen Chengxiang (1999) used the methods of Causal Test, ADF Unit Root Test and Cointegration Test, and found that there is a reversible causal relationship between export and economic growth but no long-term stable relations in China; Song Shaohua, Song Hongming (2001) made use of the methods of Causal Test, ADF Test and concluded that export promotes the economic growth in the short term, but it is invisible in the long term; Bao Qun, Xu Helian and Lai Mingyong (2003) recognized that different ways will lead to different conclusions and only the degree of dependence on foreign trade can reflect the relationship between economic growth and trade openness better than other variables by Correlation Analysis, Regression Analysis, Variable Regression Model. After further study, they found that economic growth depends mainly on the input of elements but not the trade openness.

So many scholars above used different methods to prove their own point of view, but the author think that the study of the following issues are worth considering:

*1.1 More scholars in the study of this issue, only considered the impact of import or export separately on the economy, but did not take full account of the impact of the two variables, the export and import, on economic growth together.*

*1.2 Previous studies only considered the impact of two variables, export and import, on economic growth without considering other variables, such as investment, consumption, government expenditure, and so on so forth.*

*1.3 The studies above rarely noticed the lagging effect of the variables and only paid attention to the impact of the current variables on economy.*

## 2. Model Specifications

We should consider some aspects researching the relations between foreign trade and economic growth as following:

*2.1 The measure of foreign trade*

To this point, many economists at home and abroad used to make import or export or their difference as the measure of

foreign trade. However, it is not comprehensive to consider these indicators separately due to import and export constituting one country's foreign trade together. Therefore, we should take into account the import and export at the same time while researching the impact of foreign trade on economic growth.

*2.2 The measure of economic growth*

There are many indicators to measure a country's economic growth, such as GDP, GNP and economic growth rate, and so on. Which one is more appropriate? The author decided to use GDP as the explained variable to measure economic growth because that the major countries in the world today are using GDP to measure their nations' economic growth, and GNP is lack of time series data relative to GDP.

*2.3 The analysis of the factors*

In this study, the total amount of exports and imports are considered to be the main factors. In addition, there are many other factors that affect economic growth according to economic theories.

First of all, the consumption has played a significant role in economic growth, and Keynesian theory of consumption recognized that consumption can promote the production.

Secondly, in the early period of classical economics, Adam Smith proposed a theory that the capital (investment) is the motivation of the economic growth. So, investment should be considered into the model.

Finally, the Keynesian multiplier theory said that the government's spending could increase national income in number of times, so government spending should also be taken into account as the factors of the model. Therefore, this thesis makes "Import", "Export", "Consumer", "Investment" and "Government Expenditure" as explanatory variables of the model.

*2.4 The design of the model's form*

In this thesis, the theoretic gist of the model's design is based on the Keynesian National Income Accounting Identity: GDP = Consumption + Investment + Government Spending + Exports – Imports, but only a single equation model to explore the relationship between foreign trade and economic growth is not enough considering the probable two-way causal link existing in the variables. As a result, establishing simultaneous multi-equations model is a more appropriate choice. Here, the author assumed that the national income GDP as $Y_t$, Consumption as $C_t$, Investment as $I_t$, Government Spending as $G_t$, Exports as $EX_t$, and Imports as $IM_t$.

The establishment of simultaneous multi-equations model is as following:

$$Y_t = C_t + I_t + G_t + EX_t - IM_t \qquad (1)$$

$$C_t = \alpha_0 + \alpha_1 IM_t + \alpha_2 C_{t-1} + \upsilon_{1t} \qquad (2)$$

$$I_t = \beta_0 + \beta_1 Y_t + \beta_2 I_{t-1} + \upsilon_{2t} \qquad (3)$$

Here, $\alpha_i$ and $\beta_i$ (i =0, 1, 2) are the unknown parameters, and $\upsilon_{1t}$ and $\upsilon_{2t}$ are random disturbances representing the combined effects of those factors which affect the explained variables but not taken into the model. Endogenous variables are $Y_t$, $C_t$ and $I_t$, and endogenous variable number M = 3. Predetermined variables are $G_t$, $C_{t-1}$ and $I_{t-1}$, and its number K = 3.

Note: the above simultaneous multi-equations accord with the conditions of the Two-Stage Least Squares, and the test is elided.

## 3. The collection of data

In this thesis, the relative data of china in 1978 - 2007 are shown in the following Tables.

**Insert Table 1 here**

## 4. Model identification

In the simultaneous equations model, the first step is to judge the model's identification in order to obtain a reasonable estimate of the parameters. According to the simultaneous equations (1), (2), (3), we can conclude their standard forms are:

$$0 - C_t - I_t + Y_t - G_t - EX_t + IM_t + 0 \times C_{t-1} + 0 \times I_{t-1} = 0 \qquad (4)$$

$$-\alpha_0 + C_t + 0 \times I_t + 0 \times Y_t + 0 \times G_t + 0 \times EX_t - \alpha_1 \times IM_t - \alpha_2 \times C_{t-1} + 0 \times I_{t-1} = \upsilon_{1t} \qquad (5)$$

$$-\beta_0 + 0 \times C_t + I_t - \beta_1 Y_t + 0 \times G_t + 0 \times EX_t + 0 \times IM_t + 0 \times C_{t-1} - \beta_2 I_{t-1} = \upsilon_{2t} \qquad (6)$$

The matrix (B, Γ) of their Standard forms is:

$$(B, \Gamma) = \begin{pmatrix} 0 & -1 & -1 & 1 & -1 & -1 & 1 & 0 & 0 \\ -\alpha_0 & 1 & 0 & 0 & 0 & 0 & -\alpha_1 & -\alpha_2 & 0 \\ -\beta_0 & 0 & 1 & -\beta_1 & 0 & 0 & 0 & 0 & -\beta_2 \end{pmatrix}$$

Since the equation (4) is an identity, there is no need to judge its identification. The identification of equation (5) and (6) are as following:

### 4.1 Identification of the equation (5)

First of all, use the order conditioning to judge. Make the number of endogenous variables as $m_5$, and $m_5 = 2$; make the number of predetermined variables as $k_5$, and $k_5 = 1$. We know that $K-k_5 = 2$ and $m_5-1 = 1$, so $K-k_5 > m_5-1$. It showed that equation (5) may be over-identification.

Secondly, use the rank conditioning to judge. We draw the second line and its non-zero coefficient which included serials 1,2,7,8 in (B, Γ) away and we could get:

$$(B_0, \Gamma_0)= \begin{pmatrix} -1 & 1 & -1 & -1 & 0 \\ 1 & -\beta_1 & 0 & 0 & -\beta_2 \end{pmatrix}$$

It is clear that this matrix can form 9 non-zero second order (M-1 = 2) determinants, so we can conclude that equation

(5) is over-identification referring to the judgment of its order conditioning.

### 4.2 Identification of the equation (6)

First of all, use the order conditioning to judge. Make the number of endogenous variables as $m_6$, and $m_6 = 2$; make the number of predetermined variables as $k_6$, and $k_6 = 1$. We know that $K-k_6 = 2$ and $m_6-1 = 1$, so $K-k_6 > m_6-1$. It showed that equation (6) may be over-identification.

Secondly, use the rank conditioning to judge. We draw the second line and its non-zero coefficient which included serials 1, 4, 9 in (B, Γ) away and we could get:

$$(B_0, \Gamma_0) = \begin{pmatrix} -1 & -1 & -1 & 1 & 0 \\ 1 & 0 & 0 & -\alpha_1 & -\alpha_2 \end{pmatrix}$$

It is clear that this matrix can form 9 non-zero second order (M-1=2) determinants, so we can conclude that equation (6) is over-identification referring to the judgment of its order conditioning.

## 5. Model Estimation

From the part 4 we know that the model is over-identification, and it is appropriate to use the Two-Stage Least Squares (TSLS) to estimate the parameters. The estimation of equation (2) is as following:

**Insert Table 2 here**

According to the table we conclude the TSLS form of equation (2) is:

$C_t = 1180.809 + 0.257016 IM_t + 0.880683 C_{t-1}$

The estimation of equation (3) is as following:

**Insert Table 3 here**

According to the table we conclude the TSLS form of equation (3) is:

$I_t = 224.9145 - 0.123501 Y_t + 1.516373 I_{t-1}$

Then we get the TSLS form of the model is:

$$Y_t = C_t + I_t + G_t + EX_t - IM_t \tag{7}$$

$$C_t = 1180.809 + 0.257016 IM_t + 0.880683 C_{t-1} \tag{8}$$

$$I_t = 224.9145 - 0.123501 Y_t + 1.516373 I_{t-1} \tag{9}$$

Finally we get this equation from equation (7), (8), (9)

$Y_t = 1251.1992 + 0.7839 C_{t-1} + 1.3497 I_{t-1} + 0.8901 G_t + 0.8901 EX_t - 0.6613 IM_t$

## 6. Conclusion

### 6.1 Export indeed plays an important role in promoting economic growth, and the positive effect of export exceeds the negative effect of import

This proves that, to some extent, import and export impact on economic growth together rather than separately. This also proves that the Keynesian National Income Accounting Identity $Y_t = C_t + I_t + G_t + EX_t - IM_t$ is right and the form of $Y_t = C_t + I_t + G_t + NX_t$ ($NX_t = EX_t - IM_t$) is wrong because their varying extents of effect. This is to say, import and export impact on economic growth together rather than net export.

*6.2 We should not ignore the role of export plays*

The export-oriented theory of neo-classical economics found that there is causal effect between export and economic growth in the real economic system. On the one hand, expansion of export helps one country to achieve economies of scale and then promote productivity; on the other hand, expansion of export helps one country to accelerate its technological progress and improve its capital efficiency. From the above analysis we do see the export has strong positive effect on economic growth. However, we also get that import has some certain impact on household consumption which is positive to economy from equation (8). The negative effect of import on the economy can be offset through affecting consumption which impacts on economic growth positively and after that its negative effect will be less. Appropriate import could improve technological progress and productivity, and even some kinds of imported goods serve for export directly, which can affect economic growth through export.

*6.3 We should notice the importance of expanding domestic demand besides import and export*

The past consumption, investment and current government spending play a significant role in economic growth. We can see that these variables have almost the same impact on economy as export from the estimation, and some even more than import. All of these provide more space for china's economic development.

From the estimation, we get a result that investment has a negative effect on economic growth which conflicts with investment theory of economics. However, this thesis focuses on the import, export and economic growth, and ignores to test that result. The failure of this thesis in this respect may be due to the bad multi-collinearity of investment and national income.

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Table 1.

| Year | $Y_t$ | $C_t$ | $I_t$ | $G_t$ | $EX_t$ | $IM_t$ |
|------|-------|-------|-------|-------|--------|--------|
| 1978 | 3605.6 | 2239.1 | 1377.9 | 480 | 995.486 | 1113.09 |
| 1979 | 4074 | 2619.4 | 1474.2 | 614 | 1361.41 | 1562.06 |
| 1980 | 4551.3 | 2976.1 | 1590 | 659 | 1809.93 | 1994.13 |
| 1981 | 4901.4 | 3309.1 | 1581 | 705 | 2200.7 | 2201.5 |
| 1982 | 5489.2 | 3637.9 | 1760.2 | 770 | 2232.1 | 1928.5 |
| 1983 | 6076.3 | 4020.5 | 2005 | 838 | 2222.6 | 2139 |
| 1984 | 7164.4 | 4694.5 | 2468.6 | 1020 | 2613.9 | 2741 |
| 1985 | 8792.1 | 5773 | 3386 | 1184 | 2735 | 4225.2 |
| 1986 | 10132.8 | 6542 | 3846 | 1367 | 3094.2 | 4290.4 |
| 1987 | 11784.7 | 7451.2 | 4322 | 1490 | 3943.7 | 4321.6 |
| 1988 | 14704 | 9360.1 | 5495 | 1727 | 4751.6 | 5526.8 |
| 1989 | 16466 | 10556.5 | 6095 | 2033 | 5253.8 | 5914 |
| 1990 | 18319.5 | 11365.2 | 6444 | 2252 | 6209.1 | 53334.5 |
| 1991 | 21280.4 | 13145.9 | 7517 | 2830 | 7191 | 6379.1 |
| 1992 | 25863.7 | 15952.1 | 9636 | 3492.3 | 8494 | 8058.5 |
| 1993 | 34500.7 | 20182.1 | 14998 | 4499.7 | 9174.4 | 10395.9 |
| 1994 | 46690.7 | 26796 | 19260.6 | 5986.2 | 12100.6 | 11561.4 |
| 1995 | 58510.5 | 33635 | 23877 | 6690.5 | 14878 | 13208.4 |
| 1996 | 68330.4 | 40003.9 | 26867.2 | 7851.6 | 15104.8 | 13883.3 |
| 1997 | 74894.2 | 43579.4 | 28457.6 | 8724.8 | 18279.2 | 14237 |
| 1998 | 79003.3 | 46405.9 | 29545.9 | 9484.8 | 18371.2 | 14023.7 |
| 1999 | 82673.1 | 49722.7 | 30701.6 | 10388.3 | 19493.1 | 16569.9 |
| 2000 | 89340.9 | 54600.9 | 32499.8 | 11705.3 | 24920.3 | 22509.4 |
| 2001 | 98592.9 | 58927.4 | 37460.8 | 13029.3 | 26609.8 | 24355.3 |
| 2002 | 107897.6 | 62798.5 | 42304.9 | 13916.9 | 32559.1 | 29517.1 |
| 2003 | 121511.4 | 67442.5 | 51382.7 | 14764 | 43789.9 | 41306.2 |
| 2004 | 124969.5 | 53950 | 70073 | 16445.2 | 59343.9 | 56068.3 |
| 2005 | 168102 | 67177 | 88604 | 26012.1 | 76206.8 | 66015.9 |
| 2006 | 193269.1 | 76410 | 109870 | 30292.7 | 77594.6 | 63376.9 |
| 2007 | 224881 | 89210 | 137239 | 36737.6 | 92787.73 | 77346.48 |

Source: Statistical Yearbook of China
        http://www.stats.gov.cn/tjsj/ndsj/
Note: The units of $Y_t$, $C_t$, $I_t$, $G_t$, $EX_t$ and $IM_t$ are 100,000,000 Yuan

Table 2.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 1180.809 | 1536.865 | 0.768323 | 0.4492 |
| IMT | 0.257016 | 0.115741 | 2.220608 | 0.0353 |
| CT(-1) | 0.880683 | 0.092862 | 9.483744 | 0.0000 |
| R-squared | 0.961406 | Mean dependent var | | 30767.06 |
| Adjusted R-squared | 0.958437 | S.D. dependent var | | 26767.25 |
| S.E. of regression | 5457.027 | Sum squared resid | | 7.74E+08 |
| F-statistic | 330.0239 | Durbin-Watson stat | | 1.700918 |
| Prob(F-statistic) | 0.000000 | | | |

Dependent Variable: CT;

Method: Two-Stage Least Squares;

Date: 12/11/08,    Time: 23:12;

Sample (adjusted): 1979 2007;

Included observations: 29 after adjustments;

Instrument list: C GT CT (-1) IT (-1).

Table 3.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 224.9145 | 762.8850 | 0.294821 | 0.7705 |
| YT | -0.123501 | 0.049308 | -2.504709 | 0.0189 |
| IT(-1) | 1.516373 | 0.109298 | 13.87372 | 0.0000 |
| R-squared | 0.995235 | Mean dependent var | | 27612.49 |
| Adjusted R-squared | 0.994869 | S.D. dependent var | | 34476.74 |
| S.E. of regression | 2469.620 | Sum squared resid | | 1.59E+08 |
| F-statistic | 2715.744 | Durbin-Watson stat | | 0.778090 |
| Prob(F-statistic) | 0.000000 | | | |

Dependent Variable: IT;

Method: Two-Stage Least Squares;

Date: 12/11/08,    Time: 23:22;

Sample (adjusted): 1979 2007;

Included observations: 29 after adjustments;

Instrument list: C GT CT(-1) IT(-1).

# The Use (and Abuse) of ISO 9000 Certification Marks

# in Promotional Materials in Malaysia

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**Abstract**

As commerce becomes complex and global, businesses, customers and even regulators become reliant on the quality certifications or badges for simplifying their choices. Some disquiet has surfaced within the International Organisation for Standardisation (ISO) about the rampant misuse of the quality certification marks. This study looks at how Malaysian firms have fared in the use of the ISO 9000 certification marks in the promotional materials. Seventy two advertisements appearing in 3 national dailies were collected and studied for compliance with the guidelines on the use of certification marks. The sampled firms generally have not observed the ISO guidelines. The extent of non-compliance of the guidelines is arguably serious. The lingering questions about the disconnection between quality and ethics are likely to continue from the evidence adduced here.

**Keywords:** Ethics, Quality, Certification marks, Governance of quality, Ethics of quality, ISO 9000

## 1. Introduction

Global commerce has not only increased but has become greatly integrated (WTO, 2000). Future growth will depend on the prospects for further and freer flow of goods, services, labour and capital between countries to optimize global value creation. The traditional business models are slowly giving way to new value chains where a constellation of global suppliers seamlessly integrate to serve the customer. These emerging global economic networks of value creation are

made possible and sustained by network of audit and certification intermediaries of all kinds (Durbin, 2000; Powers, 2000). As businesses are seeking partners from places and countries whose standards are not well-known, the ISO 9000 international standards play a role akin to that of the generally acceptable accounting standards – a baseline quality systems standard that allows supplier evaluation worldwide. It provides a quick reference and benchmark in international business with reference to the management systems of the suppliers or intermediaries. This is reflected in the increasing global uptake of ISO 9000 certification. Between 1993 and 2005, 776,608 businesses were certified (www.iso.org, 2006) and the certification continues to rise steadily with globalisation of trade and commerce (Barnes, 2000; Stevenson & Barnes, 2001). The Asian region is reported to have among the highest rates of growth in ISO 9000 certifications. With large multinationals, trade and professional associations setting certification to ISO 9000 standard as a business requirement, many more firms are seeking certification. Malaysia as an export oriented economy continues to witness increased ISO 9000 certification. Exporting firms must, in many cases, obtain the certification to enter certain markets like European Union (Karapetrovic, 1999; Stevenson & Barnes, 2001). There were 3195 firms certified to this standard by the end of 2001 (Hazman, 2000; ISO, 2002b). By far the manufacturing sector has the lion's share of the certifications but the service firms are slowly catching up, as the suitability of ISO 9000 for this sector becomes apparent.

Alongside the impressive growth in certification, there is also a growing chorus of criticism and cynicism about the certification and its value (Dick, 2000; Langford, El-Tagani & Marosszeky, 2000; Stevenson & Barnes, 2001). Many surveys have reported that firms have sought certification just to keep up with the Joneses (Acharya & Ray, 2000; Lipovatz *et al.*, 1999; Tang & Kam, 1999). The reported impact of ISO 9000 certification on organizational performance is, at best, mixed (Curkovic & Pagell, 1999; Stevenson & Barnes, 2000; Siu, 2001). But these criticisms have focused on the goals, the approach and the method of ISO 9000. The certification process, the certificating agencies and the use of the certification marks have not been examined. This paper examines the extent to which the ISO 9000 firms observe the standards i.e. ethical in displaying their certification mark in the promotional materials. This study goes beyond the usual question of the value or benefits of certification to the ethics in displaying the badge of quality certification to the customers.

## 2. The research problem and objective

As the ISO 9000 certification becomes more of a trade and business requirement in support of the global networked economy, the spotlight is on, not only the value of standard, but the entire governance of this quality certification (Jacques, 1993, 1999; Nayebpour & Koehn, 2003, 46-47). Adding to this list of misgivings about the value of ISO 9000 certification is the issue of how certification to this standard is regulated including how it is communicated to the general public (ISO, 2004; Anon., 2003). The liberal and, often, mischievous use of the certification marks tends to convey an inaccurate picture of the extent and nature of the certification (Fukuda, 2001). Fukuda (2001, 9) observed that the,

"Continual proliferation of the marks of conformity, including misuse and misleading use of them, in the global economy has significantly increased the need to respond to such questions and to provide a clear and rational basis for the use of the marks of conformity".

How serious is this misuse? This problem is particularly serious as the general public is not very knowledgeable about the nature of the ISO 9000 certification (Clark and Moreland, 1997). In Malaysia, the misperception of ISO 9000 certification is broad and serious (Hazman, 2000). Most, if not all, customers cannot distinguish between product and organization certifications. This confusion further compounded by registrars like Standards and Industrial Institute of Research Malaysia (SIRIM) or British Standards Institute (BSI) which are mainly product certification agencies. In fact, these bodies are better known as product standards agencies than for organizational certifications. The problem is growing in tandem with the rising certifications and the consequent use of the certifications marks in the promotional materials.

The primary research question of this study is how rampant is the misuse of the ISO 9000 certification marks in Malaysia? The specific research objective is to determine the extent of non-compliance of the ISO guidelines on the use of certification marks and to examine the specific types of non-compliance.

## 3. Background to the study

As a matter of standard practice, most registrars have guidelines for their clients to observe in including the use of certification marks in their promotional materials and also on their product packages (cf. www.dnvcert.com, www.vca.gov.uk, www.vca.goc., www.ul.com, www.advantica.com). Most registrars issue guidelines to their clients about the rules to observe when including the ISO 9000 certification marks in their promotion materials. The firms are generally disallowed from placing the certifications on products. When the certifications marks are placed, organizational certification, the ISO 9000 model, the registration number and the scope of certification must be included. Given that ISO 9000 standards are only applicable to organizations, any association with product certification is

incorrect and therefore firms are discouraged from placing the certification marks on their products. The adherence, however, is not very well monitored by the registrars and action taken to correct wayward firms. Violations can be observed on a daily basis in the mass media and also on the products. This calls into question the ethics of the firms involved and more importantly, the regulatory role of the registrars.

ISO has developed guidelines and registrars require certified firms to adhere to standards in using the certification marks (ISO, 1998). Although ISO has taken some steps to ensure that the certification marks are understood accurately, the surveillance and action are left to the registrars and agencies certifying the registrars. The ISO's Committee on Conformity Assessment (CASCO) is working to tackle this problem (Fukuda, 2001). ISO members are studying a draft document (ISO/IEC 17024) aimed at greater control of the registrars and their certification activities. However, the draft does not contain any drastic measures beyond reiterating ISO's commitment to see greater vigilance on the part of the registrars.

### 3.1 Quality and ethical behavior

Quality and total quality management has not explicitly, comprehensively and forcefully addressed the question of ethics (Ahmed and Machold, 2004). Although at the philosophical and theoretical level, ethics can be seen as an integral part of quality (Chen *et al*., 1997; Raiborn & Payne, 1996; Ishikawa; Deming), in practice this is not apparent as evidenced by the regular media reports of questionable practices. The definitional domain of quality speaks mainly of the need to serve the requirements of the customer. In fact, trust and fair treatment of the internal customers are important pillars of Deming's and Juran's quality edicts. The commitment to and adoption of quality initiatives does not automatically and naturally result in greater ethical stance of the firm (Nayebpour & Koehn, 2003, 44). In fact, Nayebpour and Koehn (2003, 44-47) submitted that TQM, for instance, can cause ethical problems by legitimising the primacy of one constituency – the customer over all else. Ahmed and Machold (2004) argued that the definitional domain of quality does not clearly incorporate ethics. Quality champions who fall short on the virtues of justice, liberty, care, no harm, voice, benefit, equity and transparency are likely to fall prey to the temptations of modern corporate capitalism (Ahmed & Machold, 2004. The corporate scandals in the post-Enron period in almost all countries have called into question the value of corporate governance badges issued to these corporations. If this disconnection continues to grow, the superficiality of quality and quality certifications will also grow in tandem. Quality, in the final analysis is about openness, integrity and accountability to customers, regulators and the society at large.

The mischievous use of certification mark highlights a serious dichotomy between quality and ethical probity. The resulting disquiet is likely to invite greater state regulation of the registrars and the firms. This development will take ISO 9000 out of the realm of voluntary market-based regulation to statutory regulation.

### 3.2 Conflicting duality

The control over the firms certified as conforming to the ISO 9000 requirement is an inherent part of the registrars' responsibility. The registrars have a dual role to play in the certification business. They are businesses that trade in certification services. There is always a nagging feeling that these two roles do not mix well. For instance, SIRIM has revealed that it has revoked ISO 9000 registration for private companies but these revocations have been due to the failure of the management to maintain the certified quality system rather than their mischievous use of the certification marks (Shahrum, 2002). Some registrars, through organizationally linked firms, provide training and consultancies services to the very firms they certify (Jacques, 1999). In the absence of strong professionalism among the registrars, the governance function is likely to take a back seat to profits (Seddon, 1996). It also raises questions of whether the registrars can in practice chastise their clients for non-compliance of the guidelines in the use of certification marks. Contractually, the registrars can penalize their clients who have violated the rules on the use of the certification marks including withdrawal of the certification or refusal to continue the certification. Their role is akin to the role played by the auditor's vis-à-vis the auditee in the corporate financial scene. Can the regulatory role be carried out alongside the business role? The recent corporate debacle in the US and Europe is a timely reminder of what can result when private profit clashes with social purpose. The credibility of the registrars and the agencies that accredit the registrars will eventually be diminished if firms continue to misuse the certification marks.

## 4. Research method

To ascertain the extent of abuse of the ISO 9000 certifications marks data was collected on all the advertisements that appeared in The Star, The News Straits Times (NST) and The Sun (the main English dailies in Malaysia) between October 2002 and January 2003. The exclusion of other vernacular newspapers does not affect the generalisability as most advertisements tended to appear in the English dailies. The study could be viewed as dealing with the population rather than a sample as all advertisements that appeared in the stated newspapers were collected for analysis. The congratulatory advertisements following the issuance of the certificate by a registrar were excluded from analysis. Repeat advertisements for the same product or services were not included as separate units and therefore subsequent

advertisements were disregarded. All advertisements that met the above stated criteria were selected for analysis. A total of 72 advertisements were identified and collected for analysis.

*4.1 Evaluation criteria*

To determine the extent of abuse, the ISO guidelines on the use of the ISO 9000 certification mark was used to evaluate the extent of adherence or non-adherence of the firms in including their certification marks in their advertisements (ISO, 1998). The ISO guidelines require that the certification mark must have the following features; the applicable ISO 9000 model – ISO 9001, ISO 9002 or ISO 9003 (this is not applicable for the ISO 9001:2000 version), the registrar, the certification number, the scope of certification if it is not company-wide and firm certification. The outcome of the evaluation was recorded on a dichotomous nominal scale of yes or no. This scoring was deemed sufficient as compliance or non-compliance is a fairly determinate question. However, to establish the extent of overall compliance, a Non-Compliance Score was computed with a score of 3 given when compliant and 0 if not. This Non-Compliance Score is an unweighted index that does not discriminate the relative seriousness of the non-compliance. The scores were summed to arrive at an overall, albeit, a crude metric of compliance to enable overall analysis. The compliance score, which ranges from 0 to 15, were categorised for easier analysis on the following basis.

## 5. Results

A profile of advertisement in the dailies sampled is provided in Table 1. Most of the advertisements (79%) were extracted from The Star newspaper with The New Straits Times contributing about 14% of the 72 advertisements collected. By industry, manufacturing and electronic firms led the way with about 66% (47) of the advertisements whilst there were 17% (11) from the educational institutions, 11% (8) from professional service firms and 7% (5) from property firms. Reflecting the profile of certified firms in general, a majority (65%) of the advertisements were from the goods sector while balance was from the services sector.

It is a requirement that the advertisements carrying the ISO 9000 certification mark state clearly the model to which the firm was certified. Table 1 shows the distribution by ISO 9000 models. Of the 72 advertisements sampled, the models stated in 3 (4.2%) advertisements cannot be clearly identified while another 3 (4.2%) advertisements did not state any ISO 9000 model. Eighty one (81%) percent of the advertisements had certifications marks for ISO 9001 or ISO 9002 standards. Close to thirty percent displayed ISO 9001:2000 certification marks. One advertisement even displayed ISO 9000 as the model in their advertisement which is grossly inaccurate. SIRIM QAS is by far the most active registrar with other foreign registrars contributing significant balance of the certifications. In the case of 11 advertisements, the researchers could not identify or the registrar's names were not included in the advertisements.

*5.1 Extent of non-compliance*

Seventy nine percent (79%) of the advertisements carried the name of the registrar as required (see Figure 1). Eleven percent of the advertisements did not name the registrar and in the case of another 10%, the registrar's name could not be identified from the advertisements. The guideline also requires that the registration number issued to the firm by the registrar be displayed. Only 58% met this requirement and in 10% of cases it could not be ascertained if the number was stated. Only 3 (4%) of the advertisements actually stated that the certification is for the organisation and not the product. The overwhelming majority did not pass this test. Since organisations are allowed limit the scope of certification to parts of the organisation, the scope must be stated. None of the advertisements carried any statement indicating the scope. It is unlikely that all the 72 firms involved had the whole business certified. Such misrepresentation is mischievous at best and fraudulent at worst. Ninety two percent (92%) had stated the model of ISO 9000 the firm was certified to. This is one requirement most firms have complied with. One firm had wrongly stated ISO 9000 as the standard when in fact this refers to the ISO 9000 guidelines only and no firm can be certified to this guideline. Six of the advertisements carried no reference to the ISO 9000 model. This is most basic of requirements in using the certification mark in the promotional materials. The 6 advertisements that did any display the relevant ISO 9000 model the firm was certified to, is a serious violation of the terms of the use of the certification mark.

*5.2 Non-compliance scores*

The preceding section describes the extent of non-compliance to the specific requirements. An overall index was developed to show the overall compliance. The lower the score, the higher the extent of non-compliance to the requirements and vice-versa. The Non-Compliance Scores (NCS) scores have been categorised for easier analysis and understanding. Figure 2 shows the overall NCS. About 44% of the advertisements sampled fall under the very high to high levels of non-compliance categories. Fifty one percent showed moderate levels of non-compliance while none observed all the requirements. The level of non-compliance is serious as this relates to a requirement that is contractual and misleads the customers or buyers.

## 6. Discussion

The results of this study show that the advertisements meet only the most basic of requirements, that is to state the

model to which the firm is certified. Even then some errors were observed. The level of non-compliance rises sharply when examining the information on the scope of certification and the type of certification. The Non-Compliance Score indicates the total assessment of an advertisement in terms of all the requirements. It is a summary statement of the level of non-compliance. That about half the firms (as seen through their advertisements) fall in the very high to high non-compliance groups is worrisome to say the least. With the certification on the rise, more such occurrences are likely.

Why such a worrisome level of non-compliance? It is possible that the firms have not been sufficiently alerted to the proper use of the ISO 9000 certification mark in the promotional materials by the registrars. In the haste to secure and complete the certification and to proceed to the next client registrars may have glossed over the "petty" details of the rules to observe in the use of the certification marks. The generally less critical and less vocal nature of the Malaysian consumers may have indirectly encouraged a careless attitude among the firms and the registrars. In more litigacious societies, the registrars and the clients may have been more careful and vigilant of their conduct. The intense competition in the ISO 9000 registration/certification market may also offer an added explanation for the lax surveillance. The registrars, being client friendly, may be less inclined to exert their authority on misbehaving clients. This state of mind does not encourage the registrars to censure clients when their use of the certification mark is inconsistent with the guidelines provided. In the event of any censure, this is done privately, thus lowering the 'cost' of mischievous use of the ISO 9000 certification mark.

The level of non-compliance must also be viewed from the standpoint of the consumers or the public. The Malaysian public is not knowledgeable about the meaning and the method of the ISO 9000 certification. The misuse of the certification marks can only compound the ignorance of the public by making them believe that the products and services are certified safe, clean and healthy. There is widespread believe that ISO 9000 certifications provide assurance about the quality of the product. This misconception is serious in the case of universities and colleges that also have been certified and misuse the certification. Most, if not all, colleges have only been accorded ISO 9000 certification for some programmes, campuses or functions. Yet the certifications marks are liberally used without qualification to suggest that the college offers third party accredited quality of education when in fact not all programmes or campuses or functions are within the scope of certification. The potential for miscommunication is enormous especially in the context of complex services where customers routinely use quality proxies to make up the mind. Without the knowledge of the scope of certification and the distinction between organisational and product certification, the consumers can be easily mislead.

The quality certifications play a key role in the domestic and global commerce by providing international benchmarks that reduce uncertainty about the otherwise less known players. The weak governance of quality certification in any region or country is bound to cause uncertainty, not reduce it. If the business minded ISO 9000 quality registrars are not equally mindful of their regulatory role in maintaining the certification, other forms of control may have to be considered. Perhaps the current market based self-regulation may not be as ideal an instrument for Malaysia as it is in other regions. The government may have to step in to protect the value of such certifications from declining any further.

## 7. Conclusion

The globally networked economy requires international quality standards and certification to facilitate trade and commerce between different countries and regions (ISO, 2003). The governance of quality certifications is an implicit requirement to sustain the international standards. There are already some disquiet about the role and conduct of the ISO 9000 registrars (Fukuda, 2001). The business role of the registrars can overshadow their regulatory role. The evidence from this study, albeit only looking at surveillance over the use of the ISO 9000 certification marks, raises serious questions about the present modality of quality governance in Malaysia. The registrars have a duty to ensure that the ISO 9000 certification continues to demand and maintain business management and conduct that is inspiring to facilitate the exchange in a globally networked world. If the present system is proving problematic, the market-based self-regulation of quality certification must be reviewed to put quality back in quality certifications. The Enron episode and other similar debacles must serve as a reminder of the importance of quality intermediaries and the even greater importance of maintaining integrity in the role.

## Acknowledgement

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Table 1. Profile of the advertisements

| Elements | No | Percent |
|---|---|---|
| **Newspaper** | | |
| Star | 57 | 79 |
| New Straits Times | 10 | 14 |
| Sun | 5 | 7 |
| **Industry** | | |
| Education | 12 | 17 |
| Manufacturing | 30 | 42 |
| Electronics | 17 | 24 |
| Property | 5 | 7 |
| Professional services | 8 | 11 |
| **ISO 9000 Model** | | |
| ISO 9000 | 1 | 1.4 |
| ISO 9001:1994 | 12 | 17 |
| ISO 9002:1994 | 32 | 44 |
| ISO 9001:2000 | 21 | 29 |
| NOT STATED | 3 | 4.2 |
| CANNOT BE IDENTIFIED | 3 | 4.2 |
| **Registrars/Certification Agencies** | | |
| SIRIM QAS | 21 | 29 |
| AJA | 6 | 8 |
| BM STRADA | 10 | 14 |
| LRQA | 6 | 8 |
| OTHERS | 18 | |
| NOT STATED | 7 | 10 |
| CANNOT BE IDENTIFIED | 4 | 6 |
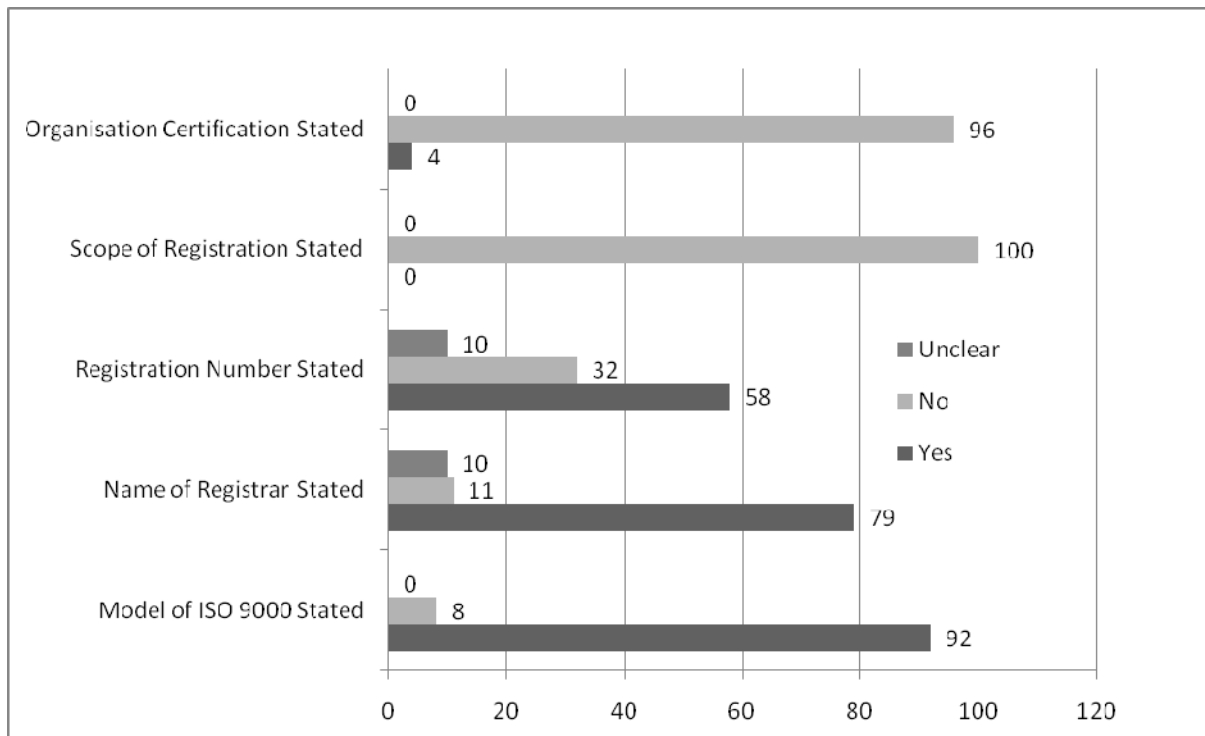
Figure 1. Compliance with the ISO Guidelines
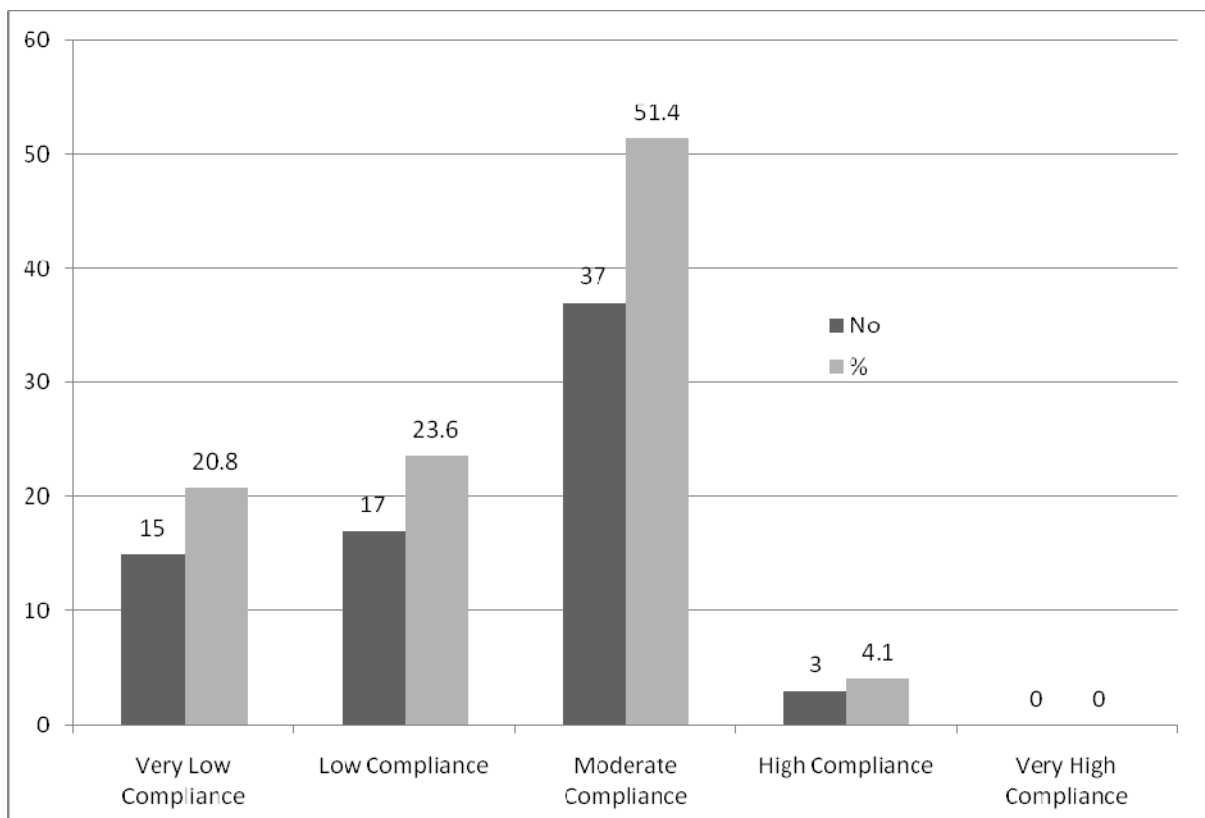


Figure 2. Non-Compliance Score (NCS)

# The Theoretic Base and Implementation Condition of the Great-leap-forward Development: Taking Undeveloped Regions of Henan Provincial for Examples

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**Abstract**

The theoretical and practical researches about the great-leap-development in foreign and domestic undeveloped regions indicate that the great-leap-development in undeveloped regions needs to implement three spans such as concept, technology and system. Through about 30 years' economic construction since reform and opening-up, the undeveloped regions in Henan Province have be provided with basic conditions to realize the great-leap-forward development in many aspects such as idea concept, economic base, policy environment and basic establishment.

**Keywords:** Great-leap-forward development, Theoretic base, Implementation condition, Henan Province

In 109 counties of Henan Province, 44 counties are national or provincial defined poor counties and the proportion of defined poor counties achieves 40%. For the regional distribution, above 50% of poor counties are located in the Huanghuai Plain in the southeast of Henan, which form the "local sinking" in the growing plain, and they have been the "soft rib" of the harmonious development of city and village in Henan Province. So we will face a series of problems such as "whether the undeveloped regions in Henan can realize the great-leap-forward development?", "whether do the theoretical bases exist?" and "what conditions are needed?" And these problems will be studied in this article.

## 1. Theoretical base and practical example of the great-leap-forward development

### 1.1 Theoretical base of the great-leap-forward development

According to the viewpoint of materialism, the development of things goes forward like wave or helix, which is the general law for the development of things, but the materialism doesn't deny the particularity in the development of things. For the universality of the development of things, it implies two basic suppositions, and one is the development of things is in the new growth stage, and the other one is the balance function of environmental variable. And if these two suppositions are in special status, so the development of thins may form another development mode, i.e. the great-leap-forward development.

At present, the great-leap-forward development has not a uniform concept. Generally speaking, the so-called great-leap-forward development is that under special historical condition, the undeveloped region utilizes some advantages such as the special gift of resource, regional and location dominance, direction and objective encouragement effect of developed regions to directly adopt a sort of supernormal economic development mode which can complete the objective and tasks of social development in a short term which needs be completed in a long term for the developed region. And in the space, the mode can exceed the original resource accumulation of some technologies and capitals in developed regions, and adopt up to date technology to implement the span strategy from "undeveloped" to "developed" according the conditions. Aiming at the problem whether this mode is a sort of "nice dream" or the realism which can be formed, we need study from theoretical layer and practical layer.

1.1.1 Theory of the late-developing advantage

For the initial cognition of the late-developing advantage, domestic scholars thought that the theory about absolute advantage and relative advantage was the forerunner of the theory of the late-developing advantage which was first described by the British classic economist Adam Smith and David Richard (Li, 2000, p. 22-24 & Jin, 2000, p. 45-46). After that, economists studied the formation reason and mechanism of the late-developing advantage from many aspects such as resource gift, location, system and industrial organization, but the systematic theory about the late-developing advantage was created by US socialist M. Levy and economic historian Gerschenkron.

Levy thought that the late-developing advantage was embodied in five aspects, (1) the modernization process of undeveloped region was not a new domain any more, (2) the undeveloped region could use formers' experiences and lessons for references, (3) the undeveloped region could leap over some early investment and accumulation stages, (4) the undeveloped region could be encouraged by formers, (5) the undeveloped region might be helped and supported by formers (M. Levy, 1988, p. 8-12). At the same time, when discussing the late-developing advantage, Levy also expatiated on the late-developing disadvantage and the problem whether the great-leap-forward development could be realized depended on how the undeveloped regions grasp the opportunity and draw on the advantages and avoid disadvantages.

In Gerschenkron's book of "Economic Lag as Viewed from History" (Xie, 2002, P. 828-848), he studied the modernization process of undeveloped countries from the layer of country, and he though the undeveloped countries mainly had two advantages, and one was that undeveloped countries could derive from development results from developed countries and learn social experiences from their development mistakes, and the other was that the leaders and intellectuals possessed lagged consciousnesses which could be ensure the supernormal development for their countries. As same as Levy, Gerschenkron thought that this late-developing advantage was only potential, and it must fulfill the condition to translating potential advantage into realism.

1.1.2 Harmonious relationship theory of human and environment

Zhu Chuan'geng et al studied the development of undeveloped region from the relationship between human and environment, and put forward the harmonious relationship theory of human and environment. On the one hand, the theory realized the important influencing function of natural environment to the regional economic character, and on the other hand, the theory also thought the human could be possible to cognate, utilize and reconstruct the natural environment, and this possibility was decided by the social productivity level, science and technology ability and human dominant. Only the harmony between human and nature could create the optimal environment for the human development. The utilization of the regional economic development condition and the development objective of regional economic should benefit promoting the harmony of regional human and environment relationship (Zhu, 1995, p. 1-2).

1.1.3 Theory of counter-gradient process development

Liu Songmao (2001) put forward the counter-gradient process theory to realize the great-leap-forward development in the undeveloped regions in his book of "Counter-gradient Process Development Theory". He thought that the gradient process theory ignored the "regional difference and industrial design" which could not form the reasonable division and association in and out the region. The undeveloped regions always possess special undeveloped resources and geographical predominance. And depending on these advantages, the economic development of undeveloped regions might not develop according to the sequence of the economic level gradient from top to bottom, and they could realize the great-leap-forward development along the counter-gradient direction.

*1.2 Successful examples of the great-leap-forward development in undeveloped regions*

1.2.1 The great-leap-forward development example of US Utah

US Utah is located in the middle and west of US, and its geographical status is similar to Chinese northwest provinces which have many mountains, and 35% of soils are desert and droughty regions, and the climate is similar to Chinese Tibet. In the past, Utah had undeveloped industry, and it belonged to traditional agricultural regions and mine regions which were poor and undeveloped. But since 1990s, Utah established the development strategy according to local conditions, developed multiple economies, drove the economic development by the high science and technology, and made its economy quickly grow up, and up to the late of 1997, Utah had possessed about 2600 high science and technology companies, and the Saline region which was the "growth pole" had 2120 companies, and the Utah became into the mirror of the great-leap-forward development in undeveloped region (Xue, 2000, p. 5-6).

1.2.2 The great-leap-forward development example of German Bavaria

Fifty years ago, when the Federal Republic of Germany was founded, the Bavaria was the typical agricultural state which had deficient resource and undeveloped industry and its half of employment population was farmers. However, through fifty year's development, the economy of Bavaria develops very quickly, and it has been the state which has the best economic strength. The success of Bavaria owes to the investment of human capital and the construction of basic establishment. In 1946, Bavaria first enacted the law which the public schools and vocational schools exempted all charges. Its education payout was always higher than the increase of other charges. To improve the investment environment, Bavaria quickened the construction of the traffic basic establishment. Up to 2000, the highway in the state had achieved 137 thousands kilometers which could directly link with the seaport of the Med. Its railway has achieved above 6400 kilometers which occupied 1/6 of the total length of the German railway (Dai, 2000, p. 7-8).

1.2.3 The great-leap-forward development example of Yongcheng City

Yongcheng City is located in the boundaries of Henan, Shandong, Anhui and Jiangsu, and in the middle and late of 1990s, its economy developed quickly and realized the great-leap-forward development. In 2004, the production gross of the city had exceeded ten millions Yuan and achieved 10.3 billion Yuan which increased above 3 billions Yuan (25.9%) than 7.078 billions Yuan in 2003, and the general financial income was 0.30696 billion Yuan which was an increase of 44.28% over the same period last year (Henan Provincial Statistical Bureau, 2003, p. 663-695, p. 623-655). The comprehensive economic strength had gone into the top 200 list of national counties (cities) and the top 20 list of Henan Province.

According to the resource advantage, Yongcheng mainly depends on the coal industry, flour processing industry and the agricultural industrialization. Yongcheng has formed the original coal production ability of 10000 thousand tons, and it is continually spread the coal industry chain and enhance the product value added. At present, Yongcheng has processed 183 flour processing enterprises, and the yearly processing ability can achieve 3 billions kilogram. There are about 20 sorts of flour, and the largest flour processing enterprise can produce 800 tons in one day. The market share of Yongcheng flour in Shanghai Pudong can achieve 60%. In 2004, Yongcheng implemented the project of "five top 10 bases" to fully develop the production of non-social-effects-of-pollution farm products. Four products including watermelon, pear, capsicum and Chinese cabbage has passed the producing area authentication and brand authentication of the Ministry of Agriculture. The planting area of poplar in Yongcheng has achieved 100 thousand acreages which have promoted about 300 wood machining enterprises.

1.2.4 The great-leap-forward development example of Xiangcheng City

Xiangcheng is located in the hinterland of the "sinking area" in the middle of Henan Province, and it has not the special advantage of resource gift. The proportion of farming population is higher than the average level of the whole province. By right of its own particular development idea, the mode of "plate economy", in 2003, its comprehensive economic strength had gone into the top 20 list in all counties of Hehan Province. In 2004, its GDP per capita achieved 7011 Yuan and increased 19.7% over the same period of last year (Henan Provincial Statistical Bureau, 2005, p. 220-222).

The so-called "plate economy" is to constitute policies, integrate resources, assemble plates and exert the interactive effect of the enterprise clusters, and form "economic plate" according to the region aiming at the tens of thousands civil economic entities which are founded in the society. At present, the city has formed four largest industrial groups including farming machine fittings, costume production, leather coat and shoe manufacture and six largest production regions which could fully exert the corporate clustering advantages of "plate economy". The leather production and sales quantity of Xiangcheng has occupied 1/4 of the national market sharing, and the costume production and sales quantity has occupied 1/8 of the whole country.

Making a comprehensive view on the theoretical researches and the practices about the great-leap-forward development in undeveloped regions, we think that because the undeveloped region has the late-developing advantage, so it is completely possible to implement the counter-gradient process strategy and realize the great-leap-forward development.

## 2. General rules of the great-leap-development in undeveloped regions

The great-leap-forward development of undeveloped region starts from the reform of the concept, and "Adversity leads to prosperity" will form the span of the concept, and the location variance, human capital variance and policy variance will be produced in the social development, and we should look for the opportunity of development to realize the technological span and system span and implement the objective spanning from undeveloped region to developed region.

### 2.1 Span of concept

Lagged productivity always companies with lagged production concepts. When unbalance occurs in the development of region, people in undeveloped region will be encouraged by the objective guidance of developed region and produce the span of concepts, which is "Adversity leads to prosperity". The basic implementation condition of concept span is the unbalance of regional development which certainly induce the conflicts of concept in the undeveloped region, and the result of conflict will induce the innovation and span of concept, and that is the base of the great-leap-forward development.

### 2.2 Span of technology

The bottle-neck factor to restrain the great-leap-forward development in undeveloped region is always the deficiency of technology and capital. Because of the low development level and lagged economic resource development, the undeveloped region is easy to show its own resource predominance and labor predominance, and it can introduce advanced technology and capitals to couple local resource and labor and produce new productivity which can span the long-term cycle of technology can capital original accumulation in the developed region and reduce the time and space term between undeveloped region and developed region, and that is the support of the great-leap-forward development.

*2.3 Span of system*

New system economics thinks that the system is one of important factors for the economic growth, and when the economic development level is higher, and the system factor will influence the economic growth longer. The economic system of the undeveloped region is decided by the lagged productivity of the undeveloped region, and the introductions of new technology, new production mode and new enterprise structure in the developed region certainly requires the transformation of economic system to adapt the requirement of the new productivity. And the transformation of the economic system will break through the traditional mode of gradual development, and it is the great-leap-forward development which is directly designed for the newly introduced production factors. The system span offers feasible system environment, system guarantee and durative drives for the economic growth and the great-leap-forward development in undeveloped region. Without the system span, even if the undeveloped region introduces capitals and technology, the great-leap-forward development can not be sustainable, and that is the guarantee of the great-leap-forward development.

**3. Implementation conditions of the great-leap-forward development in undeveloped regions: taking Henan Province for the example**

The great-leap-forward development of undeveloped region needs some conditions such as idea base, economic base, policy environment and basic establishment.

*3.1 Idea base*

Because of historical location factors, farmers are binding with traditional ideas seriously and their ideas are conservative. After reform and opening-up, farmers' ideas of Henan are changing under the influences of interior and exterior factors, and traditional and closed rural complex in farmers' idea is gradually fading, and they are looking for their own development space in a larger range.

"Labor economy" promotes the transformation of farmers' idea. Xinyang City is located in the south of Henan Province, and it administers 9 counties, and 8 counties of them are national or provincial defined poor county, and the city is one of the most poor cities in Henan. In recent years, depending on the labor economy, Xinyang not only enhanced its economic base, but its farmer's idea changed essentially. And the economic structure was also changed radically, the county economic strength was largely enhanced, and the comprehensive economic strengths of "Xin County" had been in the 57th list in the whole province from the last one in 1996, and it had been in the middle level of the county economy in Henan (Henan Provincial Statistical Bureau, 2006, p. 226-228).

The transformation of rural production organization mode is one of the embodiments of farmers' idea transformation. In 2005, Henan had 40. 6 thousands rural professional cooperation organizations, and the number of participation members achieved 2680 thousand which occupied 13.3% of all farmers in the whole province, and they could create the production values of 6.698 billions Yuan, and the production per capita achieved 2499.3 Yuan (data from Henan Daily of Jan 8, 2006). The rise of rural professional cooperation organization could challenge farmers' small agriculture consciousness in Hean, and farmers produced the transformation of idea.

The professional technological training which is the transformation medium of farmers' idea can enhance farmers' technical quality. In 2004, there were 175 thousand farmers to participate in the farming worker training and obtain the completion certificate (data from the website of www.nen.com.cn, Dec 20, 2004). Up to the late of 2005, there were 1600 thousands farmers to pass the training and obtain the green certificate of planting and breeding industry (data from Henan Daily of Jan 10, 2006). These groups who were called as the "farming intellectuals" are continually extending, and under their influences and drives, Henan farmers' idea is gradually approaching the requirement of the time development.

*3.2 Economic base*

According to Simon Smith Kuznets' inverse "U" curve theory about income distribution, through later researchers' studies, they proved that the inverse "U" curve exists in the regional economic development (Zhao Zhenhua, www.studytime.com.cn, May 23, 2005). In the initial stage of economic development, the gap of economic development between undeveloped region and developed region is gradually extending, and when the GDP per capita achieves 1000-3000 dollars, the gap of economic development level begins to reduce, and the "inflexion" occurs. The GDP of Henan in 2005 had achieved 1000 billion Yuan, and the GDP per capita had achieved 1200 dollars (Jan 8, 2006). Theoretically, Henan Province has possessed the economic base of the "inflexion" for the urban and rural economic development.

The form of the economic development is concretely embodied as the formation of the "growth pole" in the undeveloped region. According to Peru's theory of growth pole, the economic factors with innovational predominance are in the dominant status in the economic space, and other economic factors are subject. The economic factors in the dominant status possess the "drive" effect, and their growth and innovation will encourage and drive the increases of

other economic factors. On the practical layer, the growth companies or manufacturers with innovational ability will drive the "growth poles" of the industrial development, and these "growth poles" will drive the developments of other enterprises and extend the development space. Therefore, the occurrence of one driving-type enterprise will induce the scale growth of one enterprise group.

In the undeveloped regions of Henan, many companies and enterprises with the "growth pole" effect have formed. Most of these companies with "growth pole" possess the regional economic characters, and they could drive the development of local economy through the "diffusion effect". For example, the Nanjiecun Group in Linying County mainly manages the further processing of grain, and the series of products such as Yingsong instant noodles and fresh wet noodles have been the notable brands and enjoyed the reputation in the whole country, and the further processing ability of grain drives the developments of surrounding agricultural counties which give priority to grain production. Various counties in Xinyang City have abundant fountains and local farmers are good at the duck-feeding. The "Huaying" Birds Group based on local resource advantages can process about 30 millions cherry ducks yearly which largely drives the local duck-feeding industry. The economic cooperation mode of "company+ professional association+ base+ farmers" drives above local 10 thousands farmers to engage the birds-breeding industry which promotes the quick growth of local economy. The relative industries which taking the "Huaying" cherry duck products have formed enterprise groups at present. The economic interactions among groups further quicken the development of local economy. At present, the amount of farming enterprises in Henan which yearly production value exceeds 0.1 billion Yuan has achieved 131, and they are located in various places of Henan and forms the "growth pole" groups of undeveloped regions taking the farming as the main industry. The naissance and development of these "growth pole" groups has become the economic base of the great-leap-forward development in undeveloped regions of Henan.

### 3.3 Policy environment

After reform and opening-up, the planned economy mechanism taking the central instruction plan as the character has been obviously weakened, and the status and the function of local governments are gradually presented in the development of regional economy. According to the practice of the economic development, Henan constituted the regional economic development policies to drive the harmonious development of regional economy and implement different policies, so the policy environment spanning from the undeveloped region to the developed region has been formed, and it is mainly embodied in following three aspects.

First, Henan Province takes the harmony of regional economic development as one of important contents of its economic development. On the macro layer, several economic development plates such as "the central plains city group" "north Henan region, west Henan region and southwest Henan region" and "Huang-Huai region" are confirmed. According to the resource gifts and location characters, different plates confirm different development mode and leading industry, implement "central cities and central towns driving strategy to drive quick developments of surrounding regions especially for the rural economy and society, form the situation that various places complement each other's advantages and exert their own superintendents (Henan Provincial Statistical Bureau, 2006, P.226-228)". On the operation layer, we should implement the measure that "cities drive villages and industries help agriculture" to reduce the gap between undeveloped region and developed region and plan the regional economic development as a whole.

Second, Henan first put forward the development concept of "developing the agriculture by the industrial concept". Most undeveloped regions in Henan are centralized in the agricultural region of southeast Henan, and the development gap between undeveloped regions and developed regions is the gap between the agriculture and the industry. The concrete meaning of "developing the agriculture by the industrial concept" is to "use advanced and practical technology to change the agriculture and use advanced and practical industrial products to equip the agriculture and use modern scientific methods to manage the agriculture" and "promote the transformation from traditional agriculture to modern agriculture", and confirm concrete operation method in many aspects such as "agricultural structure adjustment", "agricultural science and technology advantage", "developing leading enterprises" and "agricultural support and protection" (Henan Provincial Committee of CCP and Henan Provincial People's Administration, 2003).

Third, the government should "transfuse blood" to the undeveloped regions by the mode of "poverty alleviation" and especially support the development of the undeveloped regions. In 2004, the capitals which were used to support the development of poor counties had achieved 1.7 billion Yuan, and 70% of these capitals were expended in the national or provincial defined poor counties, and they were mainly used to change the middle and low yield farmlands and cultivate the leading enterprises in undeveloped regions to increase the energy of economic development in undeveloped regions.

### 3.4 Basic establishment

US economist Jeffrey Madrick thought that the market, traffic and information were the drive base of economic growth in his book of "Why Economy can Increase". The quick developments of rural basic establishment in Henan will be the basic establishments to realize the great-leap-forward development in undeveloped regions.

The basic establishment construction of undeveloped regions can promote the communications of human resource, information and resources, let farming products to go out of the closed villages and enter into the market, change the products into commodities and change the resources into wealth. At present, the rural highway length in Henan has achieved 75% of the total length in Henan Province, and the length has achieved 56789 kilometers. In 2004, the total length of highway in the whole province is 2.4 times than the length in 1978. In 44 undeveloped poor counties in Henan, the natural villages which are linked with highway have achieved 87.8% up to the late of 2004, and the natural villages which are linked with electricity have achieved 99.7%, and the natural villages which are linked with telephone have achieved 94.3%. The rural market has formed large scale, and based on former rural wholesale markets, Henan confirmed 27 provincial first-class rural wholesale markets in 2004 which were spread all over the whole province. The bazaar trade amount of farming product trade and processing industry had achieved 0.49 billion Yuan (Henan Provincial Statistical Bureau, 2005, p. 377-402). So we can see that the basic establishment of undeveloped regions in Henan has obtained quick development and achieved certain scale and higher level, which makes the undeveloped regions in Henan possess the basic conditions to implement the great-leap-forward development.

## 4. Conclusions

(1) From the theoretical researches and practical examples about the developments of foreign and domestic undeveloped regions, we think the great-leap-forward development in undeveloped region can be realized, and it must follow certain rules and fulfill the implementation condition of the great-leap-forward development.

(2) To realize the great-leap-forward development in undeveloped region should implement three spans including concept span, technical span and system span. The concept span is the guidance, the technical span is the support and the system span is the guarantee.

(3) The undeveloped regions in Henan have possessed the idea concept, economic base, policy environment and basic establishment of the great-leap-forward development. Only we can improve the occasion and grasp the opportunity, the great-leap-forward development of undeveloped regions in Henan can be realized.

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